Exhibit 8

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of:	Gregory G. Raleigh	Attorney Docket No.: 39843-0184IP1
U.S. Patent No.:	11,096,055	
Issue Date:	August 17, 2021	
Appl. Serial No.:	16/421,121	
Filing Date:	May 23, 2019	
Title:	AUTOMATED DEVICE PROVISIONING AND ACTIVATION	

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PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT NO. 11,096,055 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42

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EXHIBITS

SAMSUNG-1001	U.S. Patent No. 11,096,055 to Raleigh ("the '055 Patent")
SAMSUNG-1002	Excerpts from the Prosecution History of the '055 Patent ("the Prosecution History")
SAMSUNG-1003	Declaration and Curriculum Vitae of Dr. Patrick Traynor
SAMSUNG-1004	Complaint for Patent Infringement in *Headwater Research LLC v. Samsung Electronics Co., Ltd. et al.*, 2-24-cv-00228 (EDTX), Apr. 03, 2024)
SAMSUNG-1005	U.S. Patent Publication No. 2009/0239584 ("Jheng")
SAMSUNG-1006	PCT Patent Publication No. WO2004/031488 ("Chiu")
SAMSUNG-1007	U.S. Patent Publication No. 2006/0039354 ("Rao")
SAMSUNG-1008	U.S. Patent Publication No. 2006/0206941 ("Collins")
SAMSUNG-1009	U.S. Patent Publication No. 2009/0149220 ("Camilleri")
SAMSUNG-1010	U.S. Patent Publication No. 2004/0196796 ("Bajko")
SAMSUNG-1011	U.S. Patent Publication No. 2005/0107066 ("Erskine")
SAMSUNG-1012	U.S. Patent Publication No. 2005/0164737 ("Brown")
SAMSUNG-1013	European Patent Publication No. 1 484 871 A1 ("Kelz")
SAMSUNG-1014	3rd Generation Partnership Project; Technical Specification Group Terminals; Characteristics of the USIM application (Release 7) ("3GPP TS 31.102")
SAMSUNG-1015	Digital cellular telecommunications system (Phase 2+); Specification of the Subscriber Identity Module-Mobile Equipment (SIM - ME) interface ("GSM 11.11")
SAMSUNG-1016	U.S. Patent Publication No. 2008/0080458 ("Cole")

SAMSUNG-1017	U.S. Patent Publication No. 2007/0184858 ("Landschaft")
SAMSUNG-1018	3GPP2 S.R0048-A Version 4.0, 3G Mobile Equipment Identifier (MEID) Stage 1 ("3GPP2 S.R0048-A").
SAMSUNG-1019	IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture ("IEEE 802-2001")
SAMSUNG-1020	*Security Engineering*, Second Edition ("Anderson")
SAMSUNG-1021	*Developing a new Protection Profile for (U)SIM UICC platforms*, ("Wary")
SAMSUNG-1022	*Mobile Virtual Network Operators*, Telektronikk Volume 97 No. 4 – 2001 ("Thanh")
SAMSUNG-1023	*The Symbian OS Architecture Sourcebook* ("Morris")
SAMSUNG-1024	U.S. Patent Publication No. 2010/0273450 A1 ("Papineau")
SAMSUNG-1025	Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings, June 21, 2022, available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf
SAMSUNG-1026	Samsung Stipulation Letter
SAMSUNG-1027	Docket Control Order, CASE NO. 2:24-CV-00228-JRG-RSP
SAMSUNG-1028	U.S. Patent No. 7,929,993 B2 ("Nagarajan")
SAMSUNG-1029	*Learning XML*, Erik. T Ray ("Ray"), published January 2001
SAMSUNG-1030	U.S. Patent Publication No. 2008/0020755 ("Liu")

LISTING OF CHALLENGED CLAIMS

Claim 1	
[1pre]	A wireless end-user device comprising:
[1.1]	a Wireless Wide-Area Network (WWAN) modem;
[1.2]	a secure memory to store a first service profile associated with a first service plan and a first wireless network accessible through the WWAN modem, the first service profile comprising a first set of network service policies, and
[1.3]	[a secure memory to store] a second service profile associated with a second service plan and a second wireless network accessible through the WWAN modem, the second service profile comprising a second set of network service policies;
[1.4]	a connection manager to select an access network connection for the WWAN modem, based on a selected one of the first and second service profiles;
[1.5]	at least one adaptive service policy control agent to enforce network service policies associated with the selected one of the first and second service profiles,

[1.6]	the enforced network service policies including policies enforced at an application service interface on network data connections for selected applications resident on the device.
Claim 2	
[2.1]	The wireless end-user device of claim 1, the first service profile further comprising first device credentials and the second service profile further comprising second device credentials,
[2.2]	the wireless end-user device further comprising a device master agent credential that is independent of the first and second device credentials.
Claim 3	
[3]	The wireless end-user device of claim 1, further comprising a service monitor agent to record network service usage categorized by sub-account for different wireless networks, including separate service usage counts associated with each of the first service plan and the second service plan.

Claim 4	
[4]	The wireless end-user device of claim 3, wherein for at least one of the first and second service plans, the wireless end-user device synchronizes a local service usage count with a network-based service count.
Claim 5	
[5]	The wireless end-user device of claim 1, wherein the first service plan is associated with a central provider that operates a WWAN access network, and the second service plan is associated with a virtual network operator.
Claim 6	
[6]	The wireless end-user device of claim 1, further comprising a user service interface to allow a user to make a user selection between the first and second service profiles, the connection manager to, responsive to the user selection, select an access network connection for the WWAN modem.

Claim 7	
[7]	The wireless end-user device of claim 1, further comprising a service notification and billing interface to display service usage options for each of the first and second service profiles.
Claim 8	
[8]	The wireless end-user device of claim 1, wherein the at least one adaptive service policy control agent applies network service policies from a superset profile that provides capabilities from each of the first and second service profiles.
Claim 9	
[9]	The wireless end-user device of claim 1, wherein the at least one adaptive service policy control agent detects network connection changes from the first wireless network to the second wireless net-work, and in response enforces the second set of network service policies.
Claim 10	
[10]	The wireless end-user device of claim 1, wherein the connection manager further comprises a modem selection and control layer that

	routes certain types of data traffic to the first wireless network and other types of data traffic to the second wireless network.
Claim 11	
[11]	The wireless end-user device of claim 1, further comprising a Subscriber Identity Module (SIM), the adaptive service policy control agent located at least in part on the SIM.
Claim 12	
[12]	The wireless end-user device of claim 1, the connection manager configured to prompt the WWAN modem to connect to a selected access network and send credentials associated with the selected one of the first and second service profiles to the selected access network.
Claim 13	
[13]	The wireless end-user device of claim 2, configured to, when the second service plan is inactive, suspend the second device credentials, and when the second service plan is reactivated, reactivate the second device credentials.

Samsung Electronics Co., Ltd. ("**Petitioner**" or "**Samsung**") petitions for *Inter Partes* Review ("**IPR**") of claims 1-13 (the "**Challenged Claims**") of U.S. Patent No. 11,096,055 (the "**'055 Patent**"). Compelling evidence presented in this Petition demonstrates at least a reasonable likelihood that Samsung will prevail with respect to at least one of the Challenged Claims.

I. REQUIREMENTS FOR IPR

A. Grounds for Standing

Petitioner certifies that the '055 Patent is available for IPR. This petition is being filed within one year of service of a complaint against Samsung. SAMSUNG-1004. Samsung is not barred or estopped from requesting review of the Challenged Claims on the below-identified grounds.

B. Challenge and Relief Requested

Samsung requests an IPR on the grounds noted below. Dr. Traynor provides supporting testimony. SAMSUNG-1003, ¶¶1-164.

Ground	Claim(s)	35 U.S.C. § 103
1A	1-2, 6-7, 9-10, 12	Jheng-Chiu
2A	1-2, 6-7, 9-10, 12	Jheng-Chiu-Rao
1B	3-4	Jheng-Chiu-Collins
2B	3-4	Jheng-Chiu-Rao-Collins
1C	5	Jheng-Chiu-Camilleri

Ground	Claim(s)	35 U.S.C. § 103
2C	5	Jheng-Chiu-Rao-Camilleri
1D	8	Jheng-Chiu-Bajko
2D	8	Jheng-Chiu-Rao-Bajko
1E	11	Jheng-Chiu-Liu
2E	11	Jheng-Chiu-Rao-Liu
1F	13	Jheng-Chiu-Brown
2F	13	Jheng-Chiu-Rao-Brown

The ’055 Patent claims priority to a number of applications, the earliest of which was provisional application number 61/206,354, filed on January 28, 2009. SAMSUNG-1001, Cover. While Petitioner does not concede that January 28, 2009 is the priority date that the ’055 Patent should benefit from, for the purposes of this proceeding, each asserted reference qualifies as prior art under 35 USC §§102(a), (b), or (e) (as shown in the table below) even if the January 28, 2009 date (the “**’055 Benefit Date**”) is used as the earliest possible priority date.

Reference	Filed	Published
Jheng	12/18/2008	9/24/2009
Chiu	10/2/2003	4/15/2004
Rao	7/22/2005	2/23/2006
Collins	3/8/2006	9/14/2006

Reference	Filed	Published
Camilleri	3/7/2007	6/11/2009
Bajko	8/1/2003	10/7/2004
Liu	5/9/2007	1/24/2008
Brown	12/31/2003	7/28/2005

C. Claim Construction

Petitioner submits that no formal claim constructions are necessary because "claim terms need only be construed to the extent necessary to resolve the controversy." *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011); SAMSUNG-1003, ¶23. Petitioner reserves the right to respond to any constructions offered by Patent Owner or adopted by the Board. Petitioner is not conceding that each challenged claim satisfies all statutory requirements, nor waiving any arguments concerning claim scope or grounds that can only be raised in district court. For this petition, Petitioner applies prior art in a manner consistent with Patent Owner's allegations of infringement before the district court.

II. THE '055 PATENT

A. Brief Description

The '055 Patent is directed to "a services policy communication system and method." SAMSUNG-1001, Abstract; SAMSUNG-1003, ¶¶24-25. The communication system includes (see FIG. 29 (reproduced below)):

- Service profiles including "a set of one or more service policy settings for the device for a service on the network" (SAMSUNG-1001, 8:44-67);
- A connection manager (annotated in green below) that "provides a control and supervision function for one or more modem drivers or modems that connect to an access network" (SAMSUNG-1001, 82:54-59); and
- A policy control agent (annotated in red below) that "performs a policy control function to adapt instantaneous service policies to achieve a service usage objective." SAMSUNG-1001, 48:47-49:13.

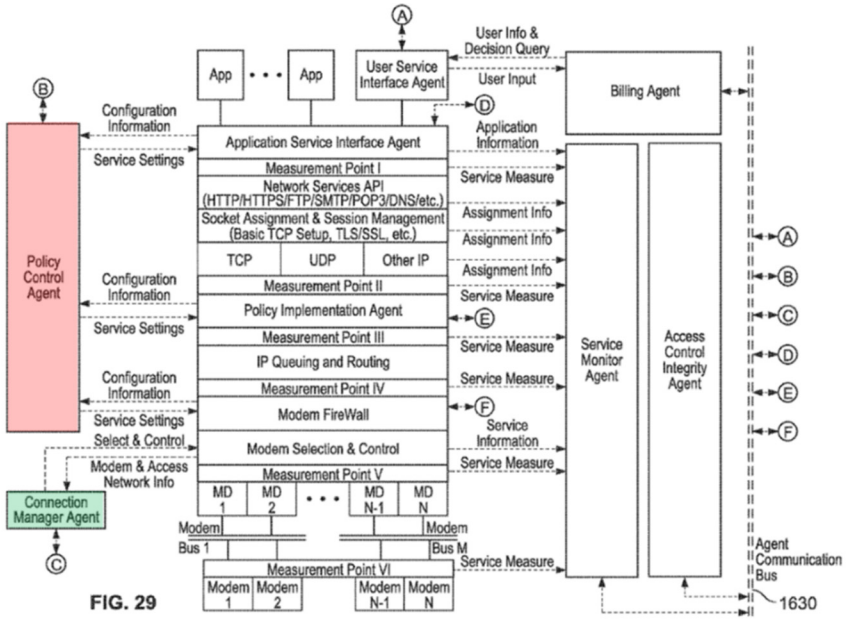


FIG. 29

SAMSUNG-1001, FIG. 29[1].

[1] Annotations to figures are shown in color.

III. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. OVERVIEW OF GROUNDS

The Petition presents a first set of grounds based on Jheng-Chiu and a second based on Jheng-Chiu-Rao. Under the first ground 1A, the Petition explains why the Jheng-Chiu combination renders obvious claims 1-2, 6-7, 9-10, and 12. In the second ground 2A, the Jheng-Chiu combination is complemented with Rao's additional disclosure for select features of limitations 1.1, 1.5, and 1.6 ("***a Wireless Wide-Area Network (WWAN) modem***," "***adaptive service policy control agent***," and "***an application service interface***," respectively)[2]. Although claim 1 is rendered obvious by Jheng-Chiu as explained below, Petitioner has also advanced the Jheng-Chiu-Rao combination to the extent Patent Owner argues that a POSITA[3] would not have found features 1.1, 1.5, and 1.6 obvious based on the Jheng-Chiu combination. SAMSUNG-1003, ¶37.

As explained in more detail below in §§III.B.3, III.B.5, III.C.2, III.D.2, III.E.2, III.F.2, and III.G.2, each of the asserted combinations would have been obvious at least because each combination would have merely involved (1) combining prior art elements according to known methods to yield predictable results; and the (2) use of known techniques to improve similar devices in the same way. *KSR*

[2] All emphasis is added unless otherwise noted.

[3] Dr. Traynor provides the definition of a POSITA. SAMSUNG-1003, ¶¶21-22.

Int'l Co. v. Teleflex Inc., 550 U.S. 398, 415-421, 82 USPQ2d 1385, 1395-97 (2007); SAMSUNG-1003, ¶¶43, 52, 121, 135, 141, 150, 159.

Moreover, the asserted references are analogous art to the '055 patent, which is generally directed to "a services policy communication system and method" for "a communications device [that] stores a set of device credentials for activating the communications device for a service on a network," for example, configuring a mobile device to connect to a network with a "roaming service profile." SAMSUNG-1001, Abstract, 8:44-67, 20:37-21:7, 48:47-49:13, 82:54-59; *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Jheng generally describes "a mobile station with a first subscriber identity card and a second subscriber identity card," and Chiu generally describes "smart connection management of portable devices within a network communication system." SAMSUNG-1005, ¶[0007]; SAMSUNG-1006, 3:1-4. Rao generally describes "a remote access architecture for providing peer-to-peer communications and remote access connectivity" where policies are applied to transmitted packets. SAMSUNG-1007, Abstract, ¶¶[0004], [0108]-[0109]. Camilleri generally describes "connecting a wireless device and a wireless network using a subscriber identity module (SIM)." SAMSUNG-1009, Abstract, ¶¶[0001], [0013]-[0015]. Bajko describes a wireless communication system "wherein a subscription is allowed to have multiple registrations to control as-

pects of the system." SAMSUNG-1010, ¶¶[0001]-[0002]. Liu describes "rendering more portable telephone service in a telecommunication network." SAMSUNG-1030, ¶[0004]. Brown describes "subscriber identity module (SIM) cards for portable electronic devices such as mobile and wireless telephones." SAMSUNG-1012, ¶¶[0001]-[0002]. Accordingly, the prior art references are all directed to the field of wireless network communications. SAMSUNG-1003, ¶¶42, 51, 120, 134, 140, 149, 158.

B. GROUNDS 1A AND 2A

1. Overview of Jheng

Jheng discloses a "mobile station" (e.g., a "mobile phone") that includes "dual Subscriber identity cards" ("SIM" or universal SIM ("USIM") cards) that can "simultaneously access two core networks." SAMSUNG-1005, ¶¶[0006], [0033]. Referring to Jheng's FIGS. 1 and 2B, a user can "make a voice call with the subscriber identity card A to the called party 120 through the cell 140A" and also "make a voice call with the subscriber identity card B to the called party 120 through the cell 140B." *Id*. This capability enables a user to reduce roaming charges, as a user can "issue an MO [(mobile-originated)] request to a cell that a Subscriber identity card camps on without roaming." SAMSUNG-1005, ¶¶[0050]-[0052]; SAMSUNG-1003, ¶26.

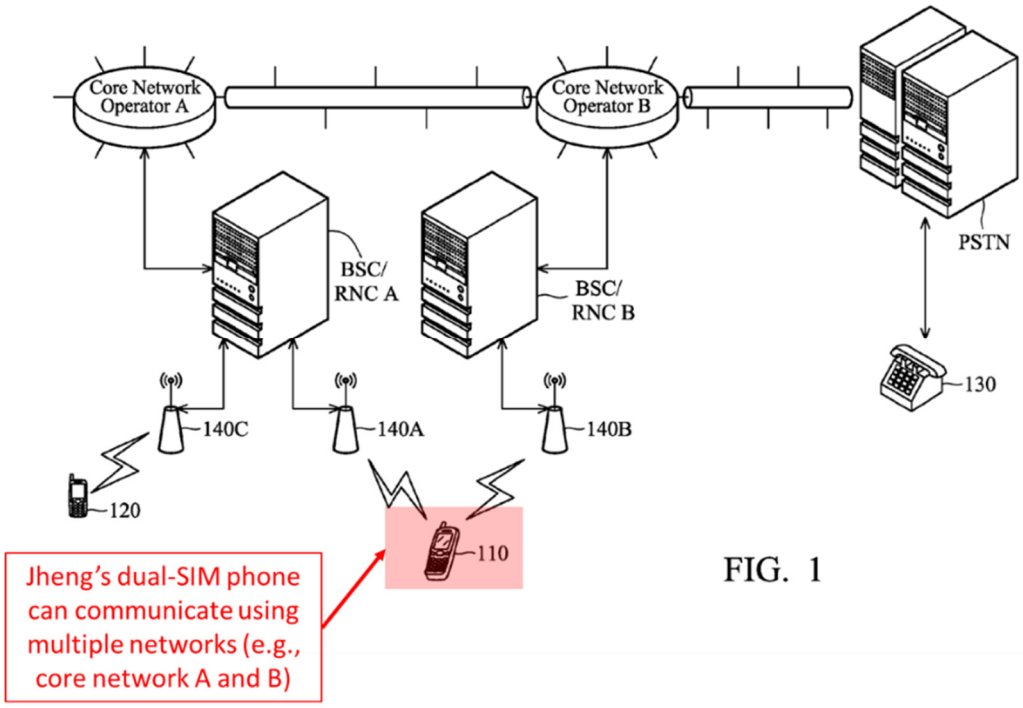


FIG. 1

SAMSUNG-1005, FIG. 1.

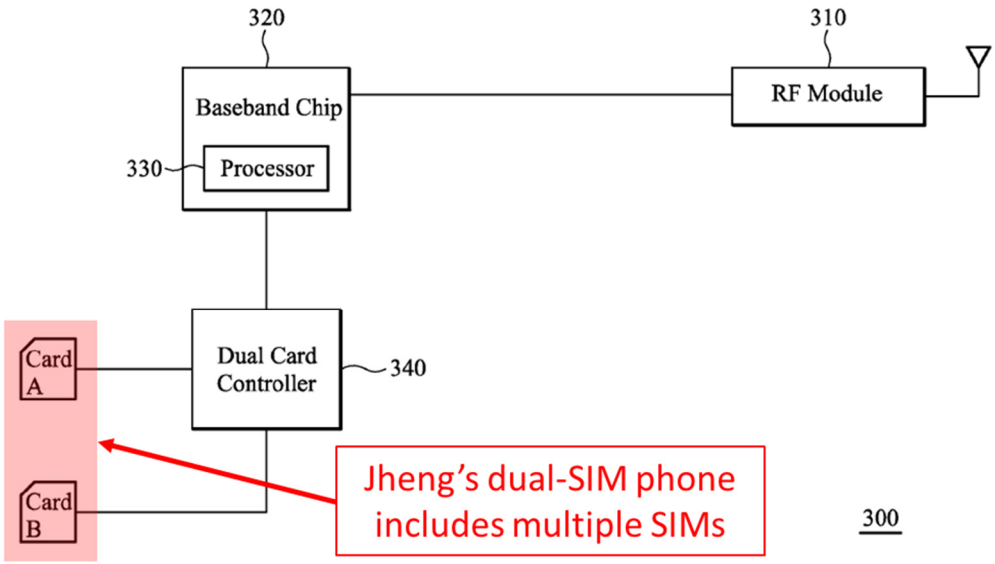


FIG. 2B

SAMSUNG-1005, FIG. 2B.

2. Overview of Chiu

Chiu discloses techniques for "smart connection management of portable devices" that use "profiles" with "configuration parameters" and "selection criteria" that determine which network connection should be active at any given time. SAMSUNG-1006, 7:17-10:11. Referring to Chiu's FIG. 2 below, Chiu's "connection manager" "activat[es] the best available connection based on configuration parameters 243 and selection criteria 247 stored with a connection profile 245." SAMSUNG-1006, 10:12-11:3. Chiu's connection manager effectuates its selection of networks using a "wireless adaptation layer 235" that changes the active "network driver 270." SAMSUNG-1006, 13:4-14:18; SAMSUNG-1003, ¶27.

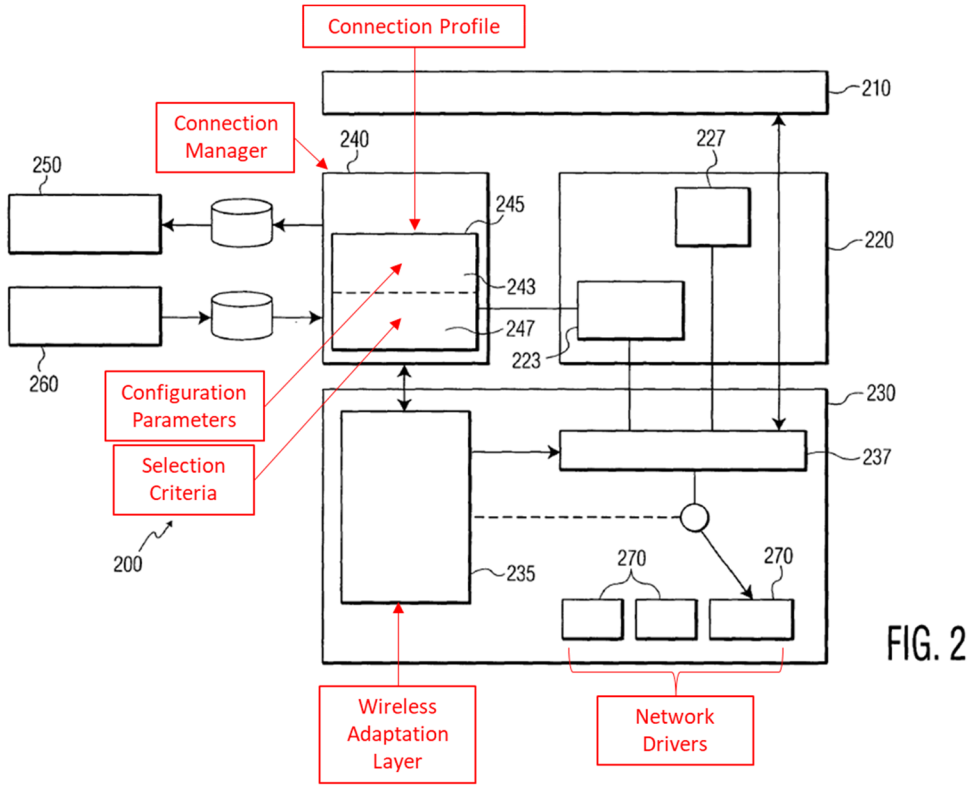


FIG. 2

SAMSUNG-1006, FIG. 2.

3. The Jheng-Chiu Combination

It would have been obvious for a POSITA to combine Jheng and Chiu such that (1) Chiu's user configurable connection profiles would have been incorporated into and stored in Jheng's system, e.g., on the USIMs of Jheng's dual-SIM phone; (2) Chiu's "smart connection management" (including, at least, Chiu's connection manager, wireless adaptation layer, tunneling interface, and network drivers—an example of which is shown in Chiu's FIG. 2) would have been used by the Jheng dual-SIM phone to manage network connections, in accordance with the stored connection profiles; and (3) implementation details of Chiu's profile database interfaces would have been incorporated into Jheng's man-machine interface (MMI). SAMSUNG-1005, ¶¶[0033]-[0035], [0050]-[0053]; SAMSUNG-1006, 4:19-6:29, 7:22-27, 8:26-10:20, 14:7-18, FIG. 2; SAMSUNG-1003, ¶38. A POSITA would have been motivated to combine Jheng and Chiu for the following reasons.

First, the ability of Chiu's connection profiles to retain a user's preferences for different networks would have been especially beneficial to Jheng's system, given that Jheng expressly describes traveling among different networks (e.g., "roaming"). SAMSUNG-1005, ¶¶[0050]-[0053]; SAMSUNG-1003, ¶39; SAMSUNG-1006, 4:19-6:29, 7:22-27, 8:26-10:20, 14:7-18, FIG. 2. Using Chiu's connection profiles and smart connection management would assist the user and avoid

the need to configure Jheng's device every time a different network was encountered when traveling, (e.g., a user would only have to configure the connection profile of the second Jheng USIM once to manage networks frequently encountered while traveling). *Id*. Indeed, Chiu discloses that setting up network connections "requires complex procedures to be performed by the end user," and removing the need to manually configure a user's preferences for each encountered network would have improved the user experience. SAMSUNG-1006, 3:16-2:5. Chiu recognizes that relying on a user to manually configure a device can be problematic because "the end user is often unable to take full advantage of the connections available to the portable device," and therefore, establishing user preferences in Chiu's connection profiles would have prevented the user from repeatedly performing complex operations. SAMSUNG-1005, ¶[0059], FIG. 13; SAMSUNG-1006, 3:16-2:5; SAMSUNG-1003, ¶39.

Second, incorporating Chiu's connection profiles onto Jheng USIMs would have provided a convenient way for Jheng service providers to implement network-wide policies, as Chiu discloses that such policies can be periodically "pushed" to the device. SAMSUNG-1006, 6:4-7, 9:2-10; SAMSUNG-1003, ¶40. Chiu explains that, prior to its techniques, providers "experience[d] problems enforcing consistent communication policies across a group of users" because the process of establishing network connections was "mostly manual and require[d]

complex procedures to be performed by the end user." SAMSUNG-1006, 3:16-2:5. Although Jheng allows a user to manually configure a USIM, a POSITA would have recognized and found obvious that Chiu's techniques would have alleviated difficulties in establishing network-wide policies by reducing the need for user action. *Id*.; SAMSUNG-1003, ¶40.

Third, Chiu's functionality of displaying available connection profiles stored in a profile database, would have allowed the user of Jheng's dual-SIM phone to easily view and "fine tune" connection profiles, as taught by Chiu, to better achieve the user's individual service needs. SAMSUNG-1005, ¶¶[0050]-[0060], FIGS. 6, 9, 11; SAMSUNG-1006, 8:26-9:10; SAMSUNG-1003, ¶41.

Incorporating Chiu's connection profiles into Jheng's USIMs would have been predictable and foreseeable with a reasonable expectation of success because Jheng describes USIMs that store user account information and authentication information associated with a user, similar to Chiu's stored connection profiles that describe users' network preferences. SAMSUNG-1005, ¶¶[0029]-[0030]; SAMSUNG-1006, 4:19-6:29, 7:22-27, 8:26-10:20, 14:7-18, FIG. 2; SAMSUNG-1003, ¶44. Indeed, before the Benefit Date, USIMs included various elementary files (EF) that stored information associated with the user, their connection preferences, and the services provided by the USIM, for example, "MMS User Preferences"

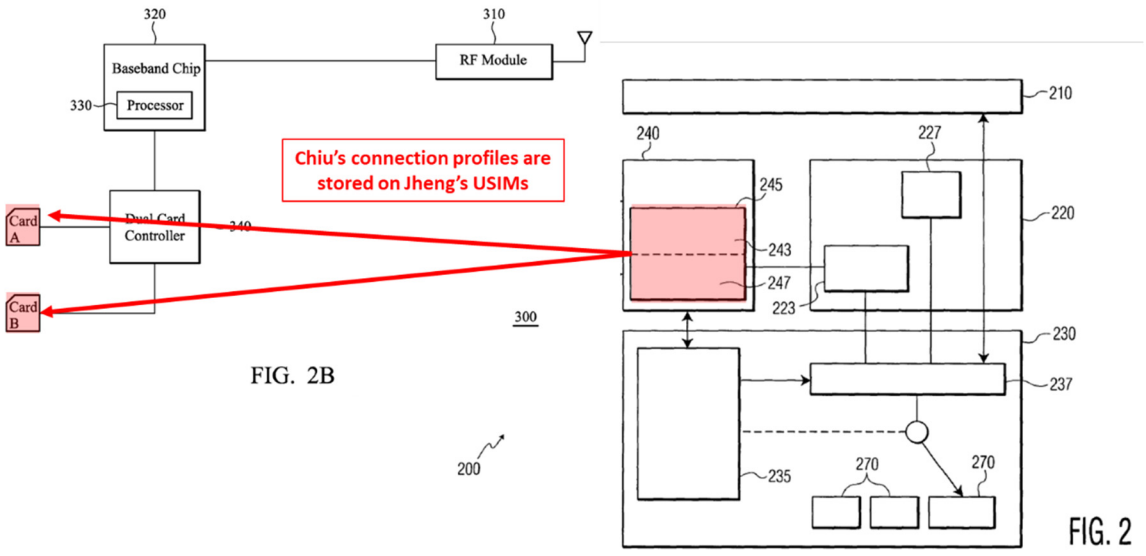
and "MMS User Connectivity parameters" which are "used by the [mobile equipment] for MMS network connection." SAMSUNG-1014, 69-70; SAMSUNG-1015, 50-83.

Additionally, as Dr. Traynor explains, incorporating Chiu's smart connection management system into a mobile device, like Jheng's mobile station, to manage wireless networks was well known as of the '055 Benefit Date. SAMSUNG-1006, 6:8-22, 10:12-20, 13:4-14:18; SAMSUNG-1016, Cover, ¶¶[0036]-[0039], FIG. 2; SAMSUNG-1003, ¶45 (citing SAMSUNG-1016).

Further, the implementation of Chiu's smart connection management system would have involved only routine coding ability that would have been well within a POSITA's capability (e.g., coding the functions of Chiu's smart connection management system as machine readable code to be executed by Jheng dual-Sim phone's processors). *Keynetik, Inc. v. Samsung Elecs. Co*., No. 2022-1127, 2023 WL 2003932, at *2 (Fed. Cir. Feb. 15, 2023); SAMSUNG-1003, ¶46.

One example of the combined Jheng-Chiu system is illustrated below in Jheng FIG. 2 and Chiu FIG. 2B. As shown, Chiu's user configurable connection profiles would have been incorporated into and stored on the USIMs of Jheng's dual-SIM phone, such that these profiles would govern the operation of the "smart connection system" of the Jheng-Chiu device. SAMSUNG-1005, ¶¶[0033]-[0035], [0050]-[0053]; SAMSUNG-1006, 4:19-6:29, 7:22-27, 8:26-10:20, 14:7-18, FIG. 2;

SAMSUNG-1003, ¶47.



SAMSUNG-1005, FIG. 2B and SAMSUNG-1006, FIG. 2 (Cropped, annotated, and modified by Jheng/Chiu).

4. Overview of Rao

Rao discloses "intelligent and client centric prioritization of application network communications" which prioritizes "data communications" of some applications over others. SAMSUNG-1007, ¶¶[0179], [0184] FIG. 5A. Rao describes using a "packet capture mechanism" that "inspects" network packets and a "frame monitor" that "identifies an application … that generated the packet." SAMSUNG-1007, ¶¶[0109], [0158]-[0159], [0176], [0180], [0185], [0191], FIG. 5A; SAMSUNG-1003, ¶28.

As shown in Rao's FIG. 5A below, Rao's remote access client 105 is connected to network 104 through one or more wireless connections. SAMSUNG-1007, ¶[0179]. Rao uses a network interface, e.g., a modem, to communicate with

a WWAN network. SAMSUNG-1007, ¶[0125]. "The client 105 may execute one or more applications 338a-338n, which access the network 104 via the agent 326 and filter 322 of the remote access client 120." SAMSUNG-1007, ¶¶[0179], [0090]; SAMSUNG-1003, ¶29.

Rao's system implements "one or more policies 520 for specifying client-side prioritization of network communications related to applications 338a-338n." SAMSUNG-1007, ¶[0182]. For instance, these policies can "define prioritization" based on criteria such as the application "name," "type," "protocol[], payload size, including "whether an application is running in the foreground or the background," and/or "the destination network address." SAMSUNG-1007, ¶[0182]; SAMSUNG-1003, ¶30.

Rao deploys policies by intercepting packets, determining the priority of the packet based on the application that is associated with each packet, and selectively communicating the packets to the network. SAMSUNG-1007, ¶¶[0184]-[0190], FIG. 5B. As an example, Rao's system can "use the policies 520 to determine which network packets to queue and/or discard." SAMSUNG-1007, ¶¶[0080], [0184]-[0186], [0207], FIG. 5A; SAMSUNG-1003, ¶31.

5. The Jheng-Chiu-Rao Combination

It would have been obvious for a POSITA to modify the Jheng-Chiu mobile station to incorporate (1) Rao's remote access client and prioritization techniques,

and (2) Rao's WWAN modem for at least the following reasons. SAMSUNG-1007, ¶¶[0099]-[0116], [0125]; SAMSUNG-1003, ¶48.

First, incorporating the functionality of Rao's remote access client into the Jheng-Chiu mobile station would have beneficially provided the Jheng-Chiu system with the additional capability to identify individual application traffic, thus allowing a USIM's connection profiles to restrict specific application traffic to a specific network associated with that USIM. SAMSUNG-1007, ¶¶[0109], [0179]-[0184]; SAMSUNG-1003, ¶49. A POSITA would have recognized this benefit, as this was known in the art, as evidenced by other prior art references. SAMSUNG-1017, ¶¶[0043]-[0046], FIG. 2; SAMSUNG-1003, ¶49 (citing SAMSUNG-1017).

Second, Rao's prioritization techniques would have enhanced the utility of the Jheng-Chiu mobile station, particularly for a user wanting to prioritize certain traffic while traveling (e.g., avoiding expensive application traffic on a foreign network). SAMSUNG-1007, ¶¶[0109], [0179]-[0184]; SAMSUNG-1003, ¶50. For example, Rao describes data intensive applications like streaming video and/or audio that would have been exceedingly expensive to operate while roaming. SAMSUNG-1007, ¶[0088]; SAMSUNG-1003. ¶50.

Incorporating Rao's remote access client and prioritization techniques into the Jheng-Chiu device would have been predictable and foreseeable with a reason-

able expectation of success because Rao describes that its techniques can be implemented in end-user devices (mobile telephones), such as Jheng's mobile station. SAMSUNG-1007, ¶[0130]. The use of computer program modules to monitor application packet flows on mobile stations was known as of the '055 Benefit Date. SAMSUNG-1013, ¶[0036]; SAMSUNG-1003, ¶51.

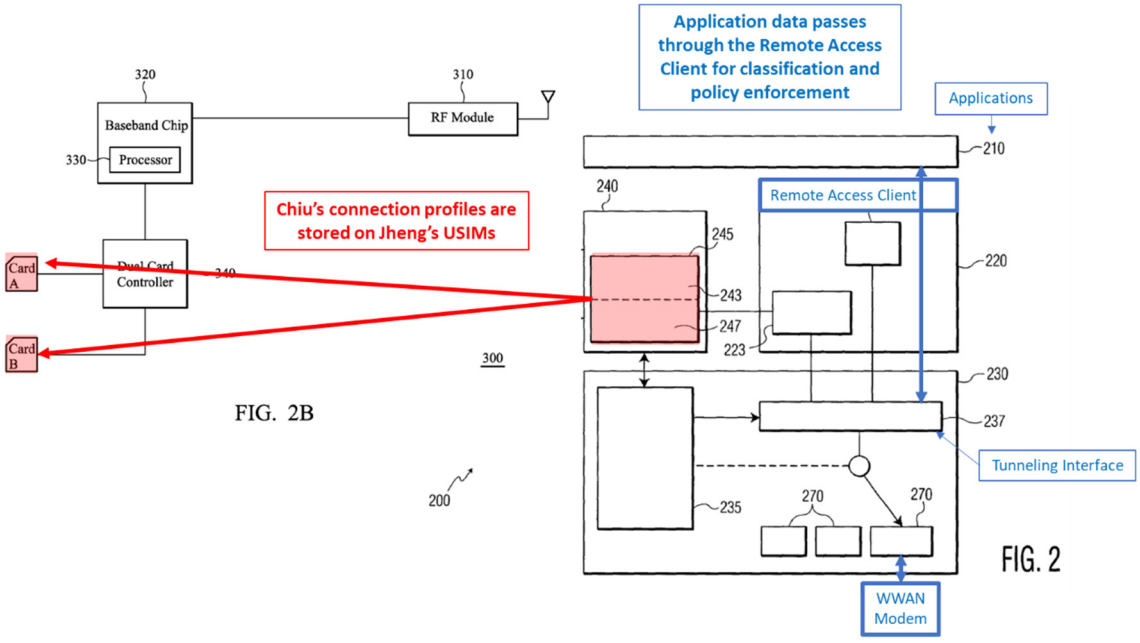
Additionally, the incorporation of Rao's prioritization techniques would have simply involved implementing software in a system already designed to execute similar program modules. SAMSUNG-1007, ¶[0092] (a "software set-up"). Indeed, implementing Rao's remote access client would have involved only routine coding ability that would have been well within a POSITA's capability (e.g., coding the functions of Rao's remote access client as machine readable code to be executed by Jheng's processors). *Keynetik, Inc.*, 2023 WL *2; SAMSUNG-1003, ¶54.

Further, Dr. Traynor explains that it was known before the Benefit Date of the '055 patent that drivers (e.g., Chiu's network drivers) controlled wireless modems in wireless devices (e.g., Rao's WWAN modem). SAMSUNG-1003, ¶55 (citing SAMSUNG-1024, ¶¶[0035]-[0039], FIG. 4).

In an example of the combined system, illustrated below in Jheng's FIG. 2 and Chiu's FIG. 2B, Rao's remote access client would have been positioned between the applications and network drivers of the Jheng-Chiu mobile station, such

that it would monitor, identify, and prioritize data packets transmitted from applications on the mobile station. SAMSUNG-1007, ¶¶[0109], [0158]-[0159], [0176], [0180], [0185], [0191], FIG. 5A; SAMSUNG-1003, ¶56.

Additionally, to the extent there is any question as to whether the Jheng-Chiu mobile station includes a modem, Rao's WWAN modem would have been used to establish network connections with the GSM, GPRS, and other WWAN networks disclosed by Jheng and Chiu. SAMSUNG-1005, ¶¶[0005], [0032]-[0033]; SAMSUNG-1006, 7:17-27, 11:4-12; SAMSUNG-1007, ¶[0125]; SAMSUNG-1003, ¶57.



SAMSUNG-1006, FIG. 2 (Cropped, annotated, and modified by Rao).

6. Analysis

[1.pre]

To the extent the preamble is limiting, the Jheng-Chiu combination renders

[1.pre] obvious. Jheng discloses a dual SIM media phone ("***a wireless end-user device***") equipped with multiple SIM cards. SAMSUNG-1005, ¶¶[0006], [0037]. Jheng's FIG. 1 (reproduced below) depicts one example of the media phone as a mobile station 110 and explains that it "may be called *user equipment* interchangeably." SAMSUNG-1005, ¶[0033]. "A subscriber identity module (SIM) card typically contains user account information, [and] an international mobile subscriber identity (IMSI)," which can be used to obtain details of the mobile user. SAMSUNG-1005, ¶¶[0029], [0032]; SAMSUNG-1003, ¶58.

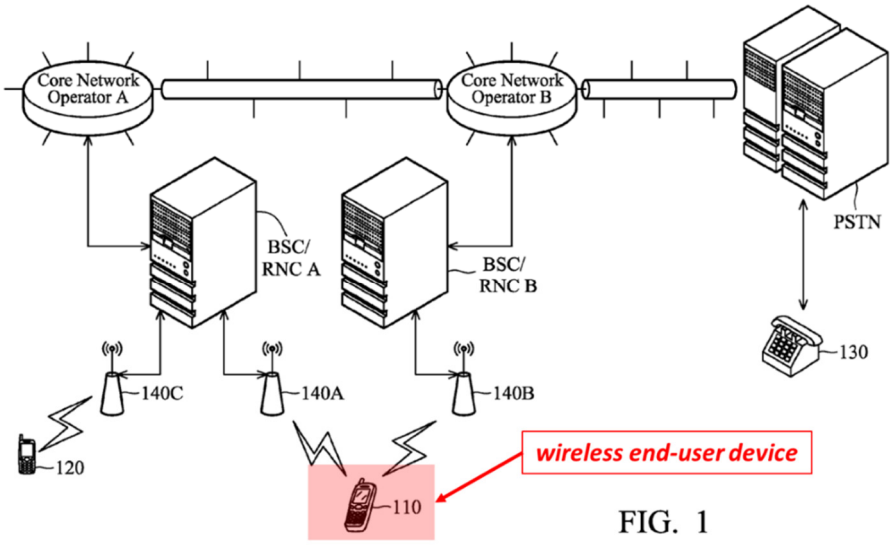


FIG. 1

SAMSUNG-1005, FIG. 1.

Jheng's mobile station 110 can make a voice or data call and "may simultaneously access two core networks such as a Global System for Mobile Communications (GSM), Wideband Code Division Multiple Access (WCDMA), CDMA

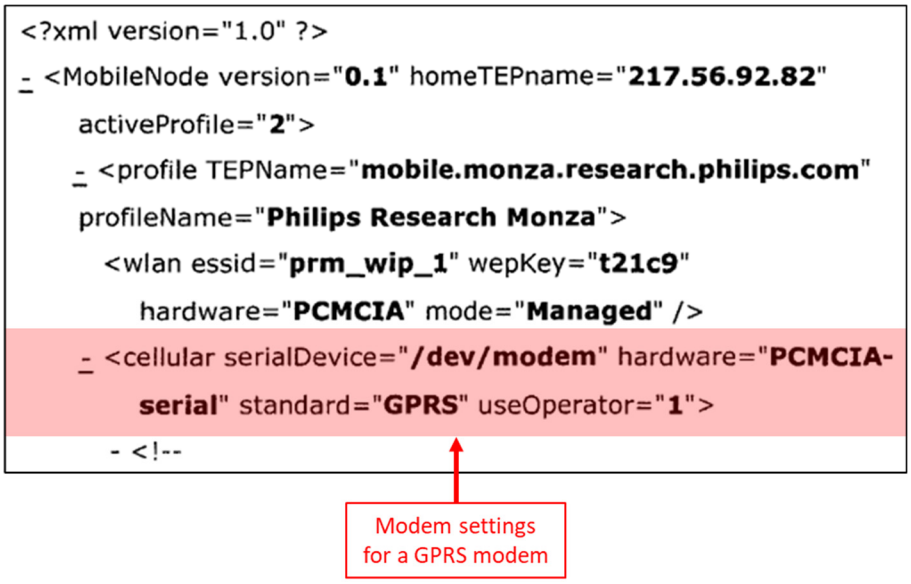
2000 and Time Division-Synchronous Code Division Multiple Access (TD-SCDMA) network and the like after camping on two cells 140A and 140B (i.e. each may be a base station, a node-B or others)." SAMSUNG-1005, ¶[0033]. Because Jheng's mobile station 110 is used by an end-user and communicates with wireless networks such as GSM and CDMA networks, Jheng discloses "***a wireless end-user device***." SAMSUNG-1003, ¶¶59-60.

[1.1]

Ground 1A Mapping

Jheng's mobile station communicates over several WWAN networks, e.g., GSM, GPRS, WCDMA, TDMA, TD-SCDMA, and other 3G networks. SAMSUNG-1005, ¶¶[0005], [0032]-[0033]. Thus, it would have been obvious to a POSITA that Jheng's mobile station would have included a WWAN modem to wirelessly communicate with the above-noted WWAN networks because modems are used to implement modulation/demodulation schemes for the wireless communication over such WWAN networks. SAMSUNG-1003, ¶61. As Dr. Traynor explains, wireless signals transmitted across wireless networks are modulated and demodulated using a modem so that the transmitted signal can be configured at a desired frequency and amplitude. SAMSUNG-1003, ¶61. When communicating across a WWAN network, a POSITA would have understood that Jheng's mobile station would have included a WWAN modem. SAMSUNG-1003, ¶61.

To the extent Patent Owner disputes the disclosure of a WWAN network and WWAN modem in Jheng, Chiu discloses these features. For example, Chiu discloses that its portable device 110 "is configured to connect to services on the Internet 130 via a variety of network connections types, such as Ethernet, *WWAN* … ." SAMSUNG-1006, 7:17-27. Chiu teaches that the portable device 110 can include a profile that "can be used to store configuration parameters 243 … for different connection types." SAMSUNG-1006, 10:31-33, 7:22-33. Excerpts of an exemplary profile 245 are shown below. SAMSUNG-1006, 11:1-13:3; SAMSUNG-1003, ¶62.



SAMSUNG-1006, 11:4-12.

As shown above, Chiu's profile includes modem setting information. SAMSUNG-1006, 11:4-12. A POSITA would have understood that when configuring

parameters for a WWAN connection, Chiu's profile would have also included settings for the WWAN modem. SAMSUNG-1003, ¶63. Therefore, it would have been obvious to a POSITA that the Jheng-Chiu device includes settings for a WWAN modem because Jheng-Chiu's portable device includes a WWAN modem. SAMSUNG-1003, ¶63.

Additionally, Dr. Traynor also explains that a POSITA would have understood and found obvious that mobile devices at the time of the Benefit Date typically included a ***Wireless Wide-Area Network (WWAN) modem***, and as such, using a WWAN modem to communicate with a wireless network would have simply been the use of a well-known communication component in devices where a POSITA would have expected such a component to be used. SAMSUNG-1016, ¶¶[0034]-[0035], FIG. 2; SAMSUNG-1013, ¶¶[0125], [0130]; SAMSUNG-1003, ¶64. Indeed, Cole discloses a "mobile device" that includes a plurality of "***wireless modem[s]***," to include a "WWAN modem 230," a "WLAN modem 235," and a "voice band modem 250." SAMSUNG-1016, ¶¶[0034]-[0035], FIG. 2.

Ground 2A Mapping

To the extent it is argued that Jheng and Chiu do not render [1.1] obvious, Rao explicitly discloses that wireless devices included a network interface 118, such as a modem, for connecting to Wide-Area Networks ("***a Wireless Wide-Area Network (WWAN) modem***"). SAMSUNG-1007, ¶[0125], FIG. 1D (reproduced

below). In combination with Jheng and Chiu, discussed above, one or more of the network interfaces in the Jheng-Chiu mobile station would have included Rao's WWAN modem to facilitate the mobile station's connection to a WWAN (networks explicitly disclosed by Jheng and Chiu). SAMSUNG-1005, ¶¶[0005], [0032]-[0033]; SAMSUNG-1006, 7:17-27; SAMSUNG-1007, ¶[0125]; SAMSUNG-1003, ¶65.

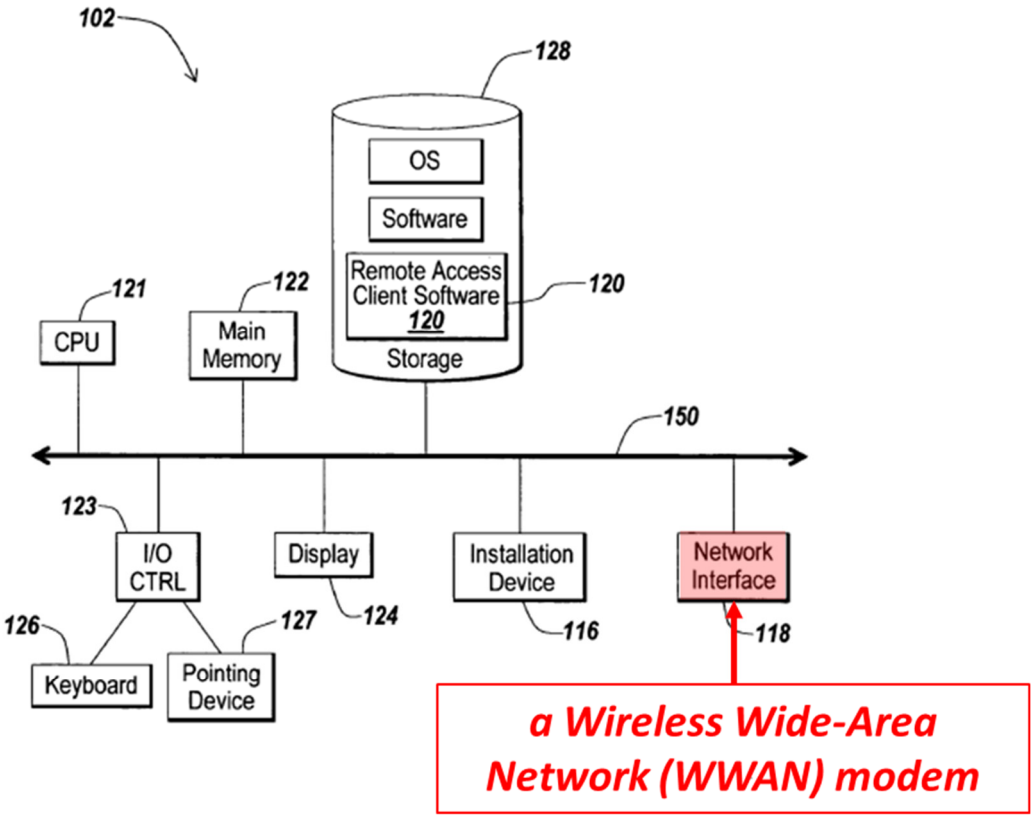


Fig. 1D

SAMSUNG-1007, FIG. 1D.

[1.2]

a secure memory to store …

Jheng discloses a "universal SIM" (USIM) that "stores user account information, an IMSI, authentication information and a set of USIM Application Toolkit (USAT) commands." SAMSUNG-1005, ¶[0030]. The USIM stores "a long-term preshared secret key K, which is shared with the Authentication Center (AuC) in the network." *Id*. A POSITA would have understood and found obvious that the memory of the USIM includes a "***secure memory***," at least because it was well known before the '055 Benefit Date that (1) USIMs included measures to control access to their memory (even to the host device), and (2) USIMs included keys (which would need to be stored securely for protection) to authenticate their use (e.g., to a network). SAMSUNG-1008, ¶[0022] (describing USIMs as a "secure storage device"); SAMSUNG-1014, 140-141; SAMSUNG-1015, 27-28; SAMSUNG-1021, 6, 9; SAMSUNG-1003, ¶66.

A POSITA's understanding of Jheng's "preshared secret key K" and storage in a secure memory is corroborated by other prior art references that describe USIMs. SAMSUNG-1014, 141. For example, the 3rd Generation Partnership Project (3GPP) published a specification for USIMs prior to the '055 Benefit Date (3GPP TS 31.102) that discloses that a USIM is authenticated to a network using

"a secret key K" which is "available only to the USIM and the AuC" (thus achieving mutual authentication and controlling how the information in the USIM could be used). SAMSUNG-1014, 141. Further, 3GPP TS 31.102 discloses "file access conditions" that define different requirements to access certain information on the USIM. SAMSUNG-1014, 140-141. The Global System for Mobile Communications (GSM) Standard 11.11 ("GSM 11.11"), published before the '055 Benefit Date, explains that file access conditions ensure that "[e]very file has its own specific access condition for each command." SAMSUNG-1015, 27-28. For example, a "NEVER" condition completely restricts access to the file to only the USIM itself (excluding even the host device). *Id*. Dr. Traynor explains that this type of restriction is important because a service provider would have wanted to restrict a user's ability to modify an issued USIM that includes service restrictions and authentication information—information a user generally should not have access to. SAMSUNG-1015, 27-28; SAMSUNG-1003, ¶67.

Other publications also describe USIMs as secure. SAMSUNG-1008, ¶[0022]; SAMSUNG-1021, 6, 9. For example, Collins (discussed below in §III.C), describes USIMs as a "secure storage device." SAMSUNG-1008, ¶[0022]. Additionally, Wary—a presentation for the 9th International Common Criteria Conference (ICCC) in 2008—describes USIMs as a "secure platform." SAMSUNG-1021, 6, 9; SAMSUNG-1003, ¶68.

Accordingly, a POSITA would have understood or found obvious that Jheng's subscriber cards, that can be implemented as USIMs, include a "***secure memory***." SAMSUNG-1005, ¶¶[0030], [0035], FIG. 2B (reproduced below); SAMSUNG-1014, 140-141; SAMSUNG-1015, 27-28; SAMSUNG-1003, ¶69. Moreover, when USIMs ("card A" and "card B") are physically connected via a socket to the dual card controller 340, the controller 340 has access to the "***secure memory***" in both cards. SAMSUNG-1005, ¶[0035], FIG. 2B.

As discussed above in §III.B.3, a POSITA would have found it obvious to implement Chiu's connection profiles into Jheng's USIMs because Jheng describes USIMs that store user account information and authentication information associated with a user, similar to Chiu's connection profile that describes a user's network preferences. SAMSUNG-1005, ¶¶[0029]-[0030]; SAMSUNG-1006, 4:19-5:2, 5:30-6:7, 6:23-29, 7:22-27, 8:26-9:10, 9:25-10:11, 10:16-20, 14:7-18, FIG. 2; *see supra*, §III.B.3; SAMSUNG-1003, ¶70. Indeed, USIMs included various elementary files (EF) that stored information associated with the user, their connection preferences, and the services provided by the USIM, for example, "MMS User Preferences" and "MMS User Connectivity parameters," which are "used by the [mobile equipment] for MMS network connection." SAMSUNG-1014, 69-70; SAMSUNG-1015, 50-83; SAMSUNG-1003, ¶70.

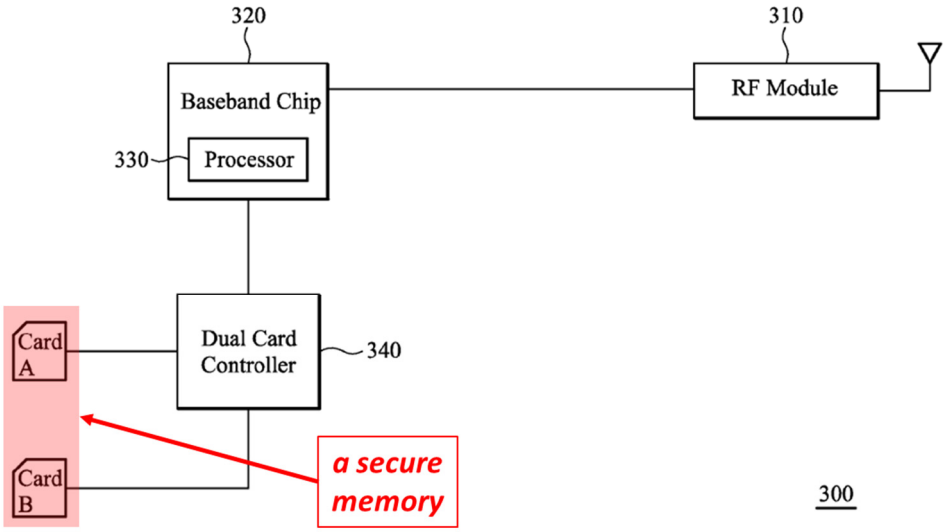
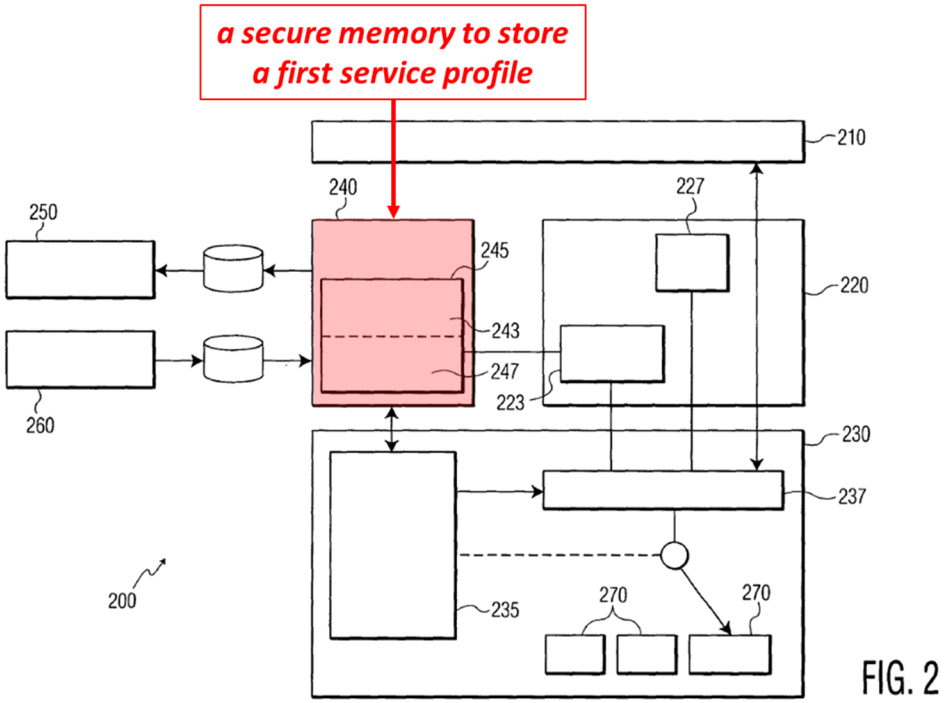


FIG. 2B

SAMSUNG-1005, FIG. 2B.

Jheng and Chiu also render a "***secure memory***" obvious in other ways. SAMSUNG-1003, ¶71. For example, Chiu's connection manager stores connection profiles that can be downloaded from external sources. SAMSUNG-1006, 10:21-30, 13:27-31, FIG. 2. Thus, it would have been obvious to a POSITA that the connection manager would have downloaded the connection profiles from Jheng's USIMs, for example, when Jheng's USIMs are plugged into the socket of the controller 340. SAMSUNG-1003, ¶71.



SAMSUNG-1006, FIG. 2.

... a first service plan

Jheng discloses that USIMs are associated with a fare plan ("***a first service plan***") that specifies USIM and mobile station use charges (e.g., "a charge per second is 0.002 dollar when making an MO call to a called party with a prefix '0919' of a phone number between a time duration of 9 to 12 o'clock via the first subscriber identity card"). SAMSUNG-1005, ¶¶[0056]-[0060], FIG. 10. Similarly, Chiu discloses that selection criteria can be based on billing information, and that service profiles can implement company-wide communication policies (additional examples of "***a first service plan***"). SAMSUNG-1006, 8:13-17. Jheng discloses

that each USIM can be associated with a fare plan (a "first" fare plan and a "second" fare plan), which as discussed below in [1.3], additionally renders obvious "***a second service plan***." SAMSUNG-1005, ¶[0056], FIG. 10; *see infra*, [1.3]; SAMSUNG-1003, ¶¶72-73.

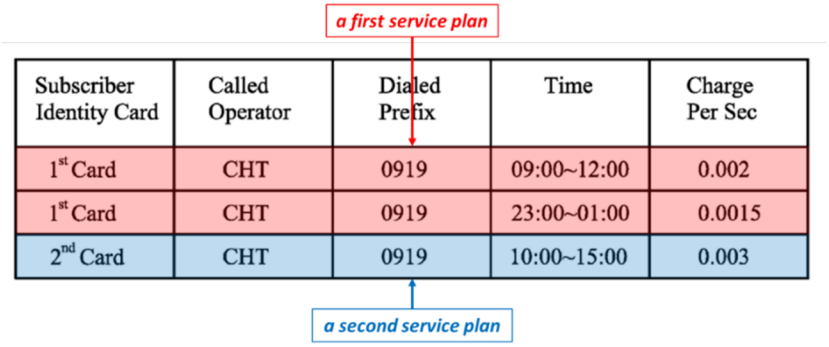


FIG. 10

SAMSUNG-1005, FIG. 10.

... a first service profile ... the first service profile comprising a first set of network service policies

Ground 1A Mapping

Chiu's portable device stores connection profiles including at least one connection profile ("***a first service profile***") that stores "selection criteria for selecting between the plurality of network connection types" ("***a first set of network service policies***"). SAMSUNG-1006, 4:19-5:2, 5:30-6:7, 6:23-29, 7:22-27, 8:26-9:10, 9:25-10:11, 10:16-20, 14:7-18, FIG. 2. Chiu's connection manager (discussed below in [1.4]) selects a particular network connection based on the selection criteria defined in the user's connection profile. *Id*. Additionally, Chiu discloses that a

company (e.g., a service provider) can specify changes in a communication policy that would cause changes to a profile's configuration parameters or selection criteria, which further impacts the communication network service provided to a user's mobile device. SAMSUNG-1006, 6:4-7, 9:2-10; SAMSUNG-1003, ¶74.

The selection criteria includes "rules or parameters that define the user's preferences in selecting between connection types" ("***a first set of network service policies***") to include a selection based on a "location parameter," among other things. SAMSUNG-1006, 5:16-29, 6:8-22, 8:11-25, 9:11-24, 10:7-11. For instance, the selection criteria include "rules for selecting between a plurality of GPRS connection configurations" based on the identity of the carrier. SAMSUNG-1006, 8:11-25. A POSITA would have understood or recognized that rules specifying the type of connection and network configurations provide a set of network service policies for using the wireless end-user device in Jheng-Chiu's system. SAMSUNG-1003, ¶75.

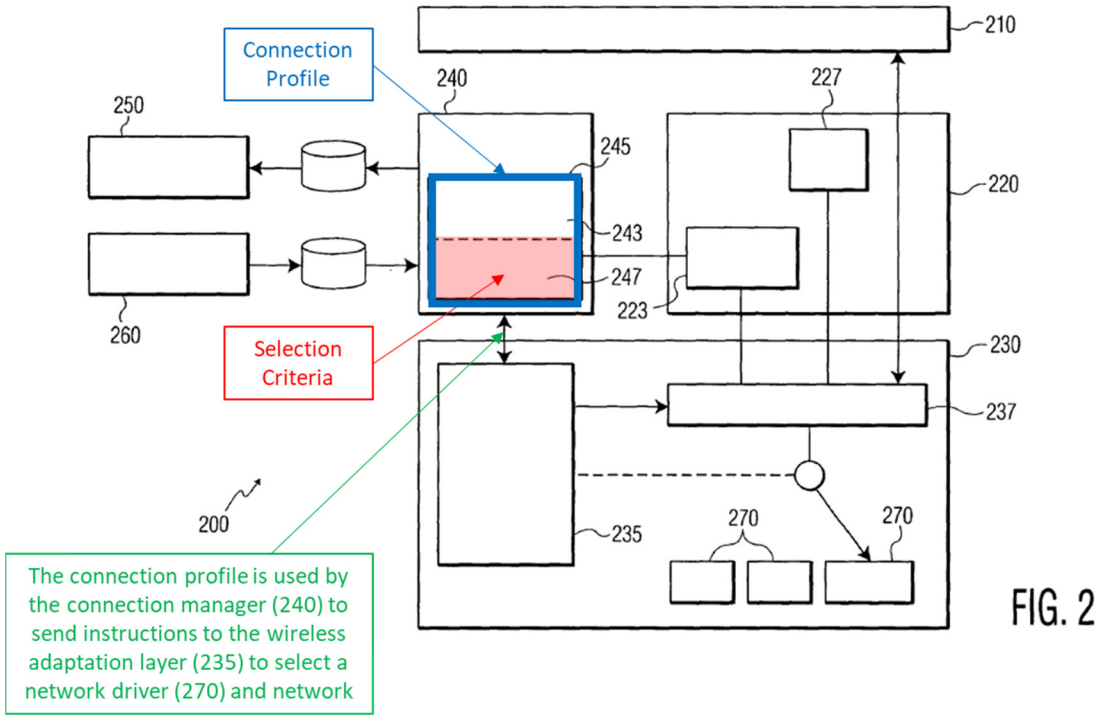


FIG. 2

SAMSUNG-1006, FIG. 2.

In the combination with Jheng, as discussed above in §III.B.3, Chiu's connection profiles would have been associated with and stored on a USIM (including a "***secure memory***"), including the selection criteria and priority policies associated with the connection profile. SAMSUNG-1005, ¶¶[0050]-[0053]; SAMSUNG-1006, 4:19-5:15; *see supra*, §III.B.3; SAMSUNG-1003, ¶76.

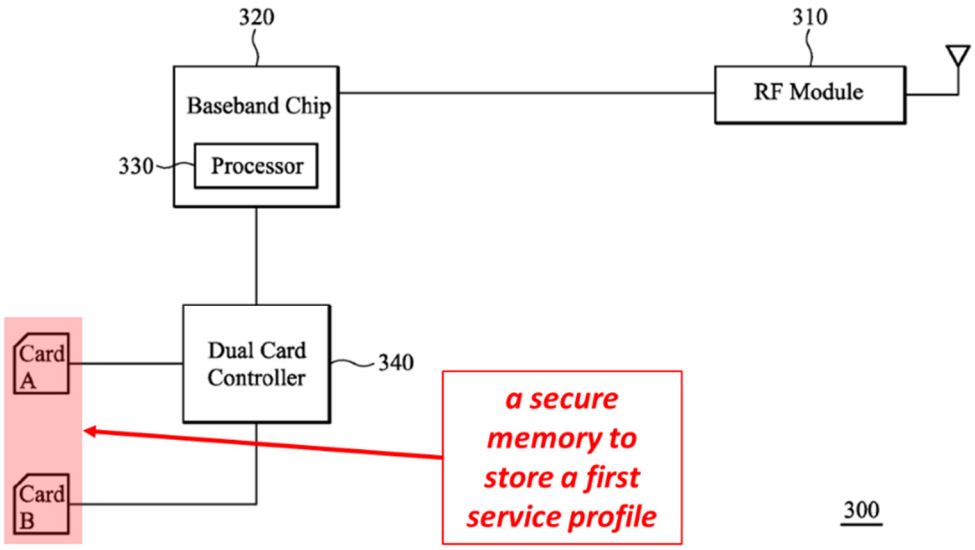


FIG. 2B

SAMSUNG-1005, FIG. 2B.

Ground 2A Mapping

Rao discloses a "remote access client" (discussed more below in [1.5] and [1.6]) that monitors the application data traffic transmitted by applications over a wireless network. SAMSUNG-1007, ¶¶[0099]-[0118], [0179], FIG. 1C; *see infra*, [1.5]-[1.6]. Rao's remote access client enforces "one or more policies 520 for specifying client-side prioritization of network communications related to applications 338 a-338 n" by intercepting, classifying, and filtering the application data traffic. SAMSUNG-1007, ¶[0182]. For instance, Rao's policies can define "prioritization" based on criteria such as: "the name of the application," "the type of application," "the type of one or more protocols used by the application[s]," "the size of the payload of the network packet," "whether an application is running in the

foreground or the background of the client," and/or "the destination network address, such as host name or IP address, and/or destination port number." SAMSUNG-1007, ¶[0182]; SAMSUNG-1003, ¶77.

In the Jheng-Chiu-Rao combination, Rao's priority policies are an additional example of "***network service policies***," because these policies define actions to be taken for specific application traffic with respect to their network use. SAMSUNG-1007, ¶¶[0099]-[0118], [0179], FIG. 1C; SAMSUNG-1003, ¶78. Rao's policies, along with Chiu's selection criteria, would have been included in Chiu's connection profiles that are stored on Jheng's USIMs, thus enabling the network operator to define prioritization policies for specific applications by issuing a consumer a USIM pre-loaded with these policies (as recognized in the art before the '055 Benefit Date, discussed above). SAMSUNG-1007, ¶¶[0109], [0179]-[0184]; SAMSUNG-1017, ¶¶[0043]-[0046], FIG. 2; *see supra*, §III.B.5; SAMSUNG-1003, ¶78.

a first service profile associated with …a first wireless network accessible through the WWAN modem

As discussed above in [1.1], Jheng's mobile station communicates over several types of WWAN networks (e.g., "Core Network Operator A"—"***a first wireless network***," and "Core Network Operator B"— "***a second wireless network***"), and in combination with Rao, the device would have included a modem to access these networks ("***accessible through the WWAN modem***"). SAMSUNG-1005,

¶¶[0005], [0032]-[0033], FIG. 1; SAMSUNG-1007, ¶[0125]; *see supra*, [1.1]; SAMSUNG-1003, ¶79. Further, Jheng discloses that each USIM can be "provided by a particular network operator" ("***a first service profile associated with … a first wireless network***"). SAMSUNG-1005, ¶¶[0033]-[0035], FIG. 1. For example, in the system of FIG. 1, USIM A can be provided by "Core Network Operator A" and USIM B can be provided by "Core Network Operator B." *Id*.

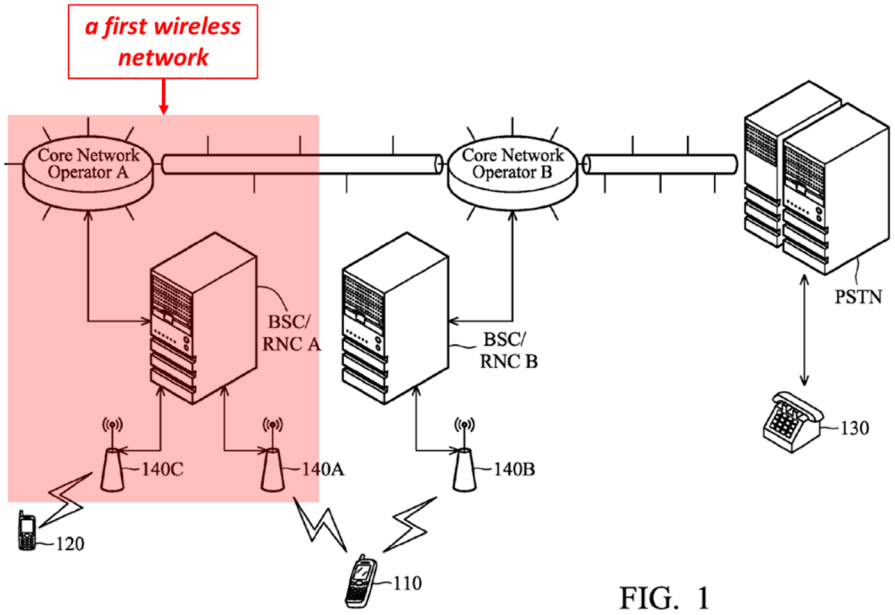


FIG. 1

SAMSUNG-1005, FIG. 1.

[1.3]

Ground 1A Mapping

As discussed in the Overview of Jheng, [1.1], and [1.2] above, Jheng discloses a mobile station with dual USIMs (including "***secure memory to store***" a

"***first***" and "***second service profile***") that can simultaneously access two core networks (a "***first***" and "***second wireless network accessible through the WWAN modem***"). SAMSUNG-1005, ¶¶[0006], [0033]; *see supra*, §III.B.1. For example, Jheng's FIG. 1 shows two wireless networks each associated with a different core network operator. SAMSUNG-1005, ¶[0033], FIG. 1. Mobile station 110 makes calls using either cell 140A or 140B using its USIMs. *Id.*; SAMSUNG-1003, ¶80.

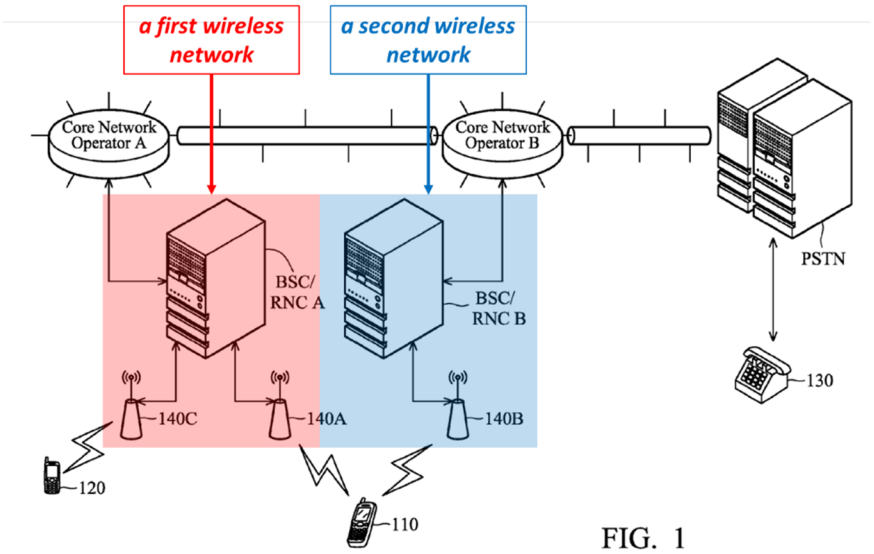


FIG. 1

SAMSUNG-1005, FIG. 1.

As discussed above in [1.2], Jheng's USIMs are associated with a fare plan, to include a second fare plan for the second USIM ("***a second service plan***"). SAMSUNG-1005, ¶[0056]; *see supra*, [1.2]. Additionally, as discussed above in [1.2], in the combination with Jheng, Chiu's connection profiles would have been associated with and stored on a USIM including the selection criteria associated with the connection profile ("***the second service profile comprising a second set of***

network service policies"). SAMSUNG-1005, ¶¶[0050]-[0053]; SAMSUNG-1006, 4:19-5:15; *see supra*, §III.B.3, [1.2]; SAMSUNG-1003, ¶81. Also, as discussed above in [1.2], Jheng discloses that each USIM can be "provided by a particular network operator" ("***a second service profile associated with … a second wireless network***"). SAMSUNG-1005, ¶¶[0033]-[0035], FIG. 1; SAMSUNG-1003, ¶81.

Ground 1B Mapping

As discussed above in [1.2], Rao's priority policies are an additional example of "***network service policies***," and in the combination, Rao's policies, along with Chiu's selection criteria, would have been included in Chiu's connection profiles that are stored on Jheng's USIMs, such that a second set of Rao's policies stored on a second USIM are "***a second set of network service policies***." SAMSUNG-1007, ¶¶[0099]-[0118], [0179], FIG. 1C; *see supra*, [1.2]; SAMSUNG-1003, ¶82.

Moreover, under both Grounds 1A and 1B mappings, the mere duplication of parts (e.g., a "***first***" and "***second***" set of network service policies) carries no patentable significance absent some unexpected result. *In re Harza*, 274 F.2d 669, 671 (CCPA 1960); SAMSUNG-1003, ¶83. Here, both sets of policies under the Ground 1A and 1B mappings perform substantially the same role and therefore the recitation of "first" and "second" does not produce an unexpected result. *Id*.

[1.4]

Jheng's mobile station communicates over several types of WWAN networks, for example, GSM, GPRS, WCDMA, TDMA, TD-SCDMA, and other 3G networks. SAMSUNG-1005, ¶¶[0005], [0032]-[0033]; *see supra*, [1.1]; SAMSUNG-1003, ¶84.

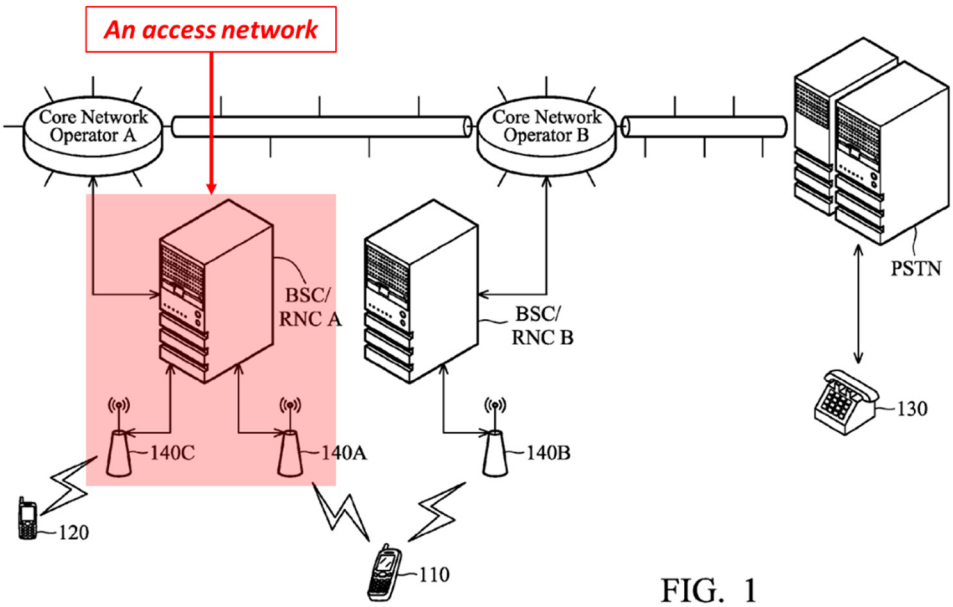


FIG. 1

SAMSUNG-1005, FIG. 1.

In the Jheng-Chiu system, Chiu's connection manager would have first determined which USIM was not roaming (as taught by Jheng). SAMSUNG-1005, ¶¶[0050]-[0052]. Next, the non-roaming setting that only allows service ("MO voice or a data call, or transmitting an SMS message") of a particular service profile in the USIM when the phone is not roaming would have been verified ("***a selected one of the first and second service profiles***"). SAMSUNG-1005, ¶¶[0050]-

[0052], [0059]-[0060], FIGS. 4, 6, 9, 12-14; SAMSUNG-1006, 8:11-19; SAMSUNG-1003, ¶85.

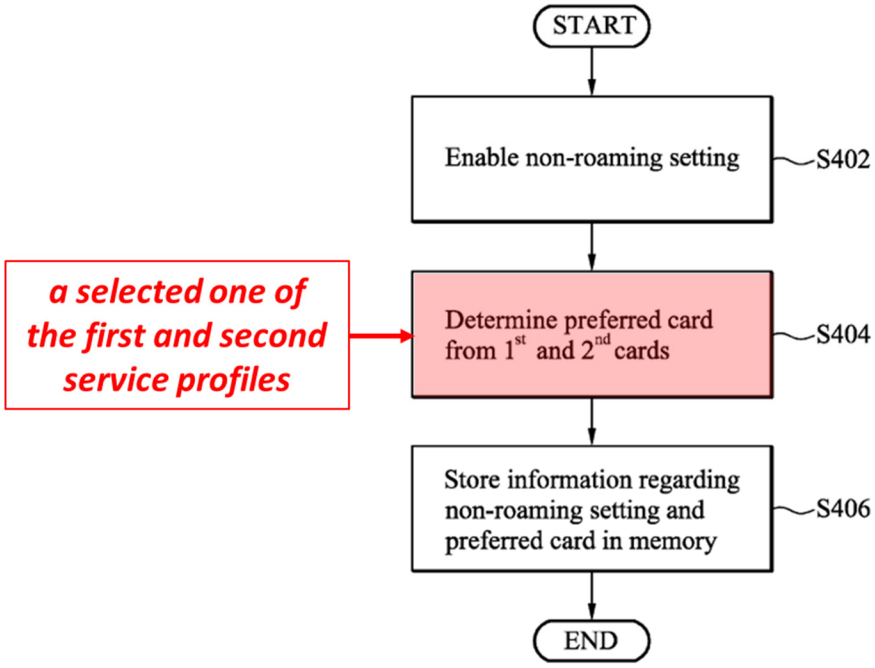


FIG. 4

SAMSUNG-1005, FIG. 4.

In addition to the non-roaming determination discussed above, Chiu's connection manager monitors the status of available networks and selects the network connection that best satisfies the selection criteria of the connection profile ("***to select an access network connection based on a selected one of the first and second service profiles***"). SAMSUNG-1006, 4:29-5:2, 6:8-22, 10:16-20, 13:4-14:18, FIG. 2 (reproduced below). As discussed above in [1.2], connection profiles stored in USIMs ("***the first and second service profiles***") include selection criteria (the "set

of network service policies") for connecting to a wireless network ("***an access network connection***") and would have been used by the connection manager to select an access network connection ("***select an access network connection … based on a selected one of the first and second service profiles***"). SAMSUNG-1006, 4:19-5:2, 5:30-6:7, 6:23-29, 7:22-27, 8:26-9:10, 9:25-10:11, 10:16-20, 14:7-18, FIG. 2; *supra*, [1.2]; SAMSUNG-1003, ¶86.

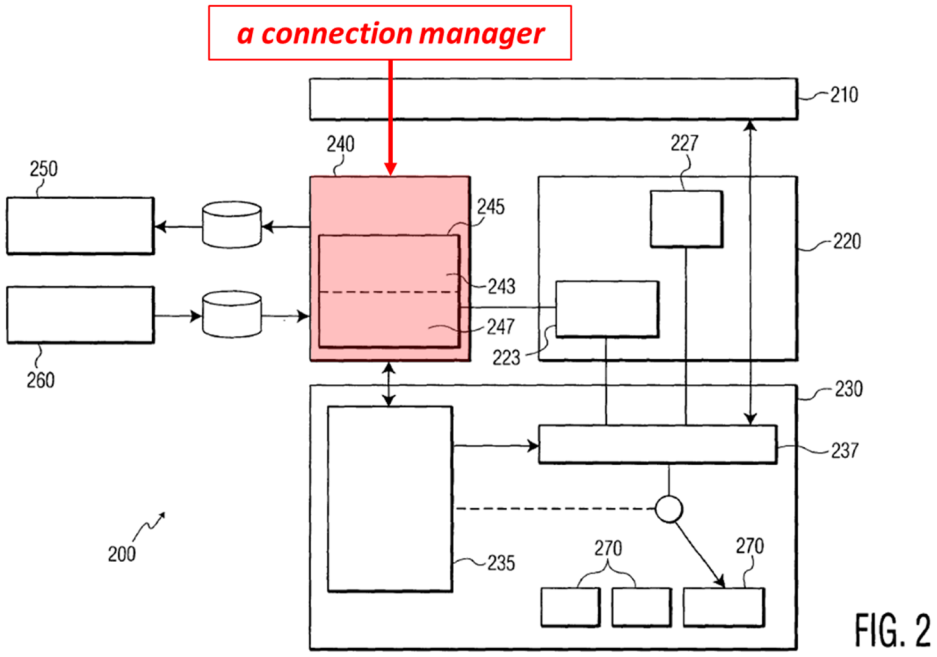


FIG. 2

SAMSUNG-1006, FIG. 2.

[1.5]

Ground 1A Mapping

Chiu discloses a "wireless adaptation layer" ("***at least one adaptive service policy control agent***") that "switches data flow to the appropriate network driver"

in response to instructions from the connection manager ("***to enforce network service policies associated with the selected one of the first and second service profiles***"). SAMSUNG-1006, 13:27-14:6. As discussed above in [1.4], the connection manager makes the selection of a network driver based on the selected connection profile and the associated selection criteria ("***the selected one of the first and second service profiles***"), and subsequently instructs the wireless adaptation layer to connect to the selected network using the appropriate network driver. SAMSUNG-1006, 4:29-5:2, 6:8-22, 10:16-20, 13:4-14:18; *see supra*, [1.4]; SAMSUNG-1003, ¶87. Additionally, Chiu's connection profiles include "configuration parameters" that are "network settings and user preferences for each network connection type" ("***network service policies associated with the selected one of the first and second service profiles***"). SAMSUNG-1006, 5:3-15. For example, configuration parameters can include "parameters for automatically controlling connection authentication" and "parameters for automatically performing IP tunneling negotiation" that are applied when connecting to a network ("***network service policies***"). *Id*. Chiu's FIG. 2 below illustrates the wireless adaptation layer's control of the network drivers. SAMSUNG-1006, FIG. 2.

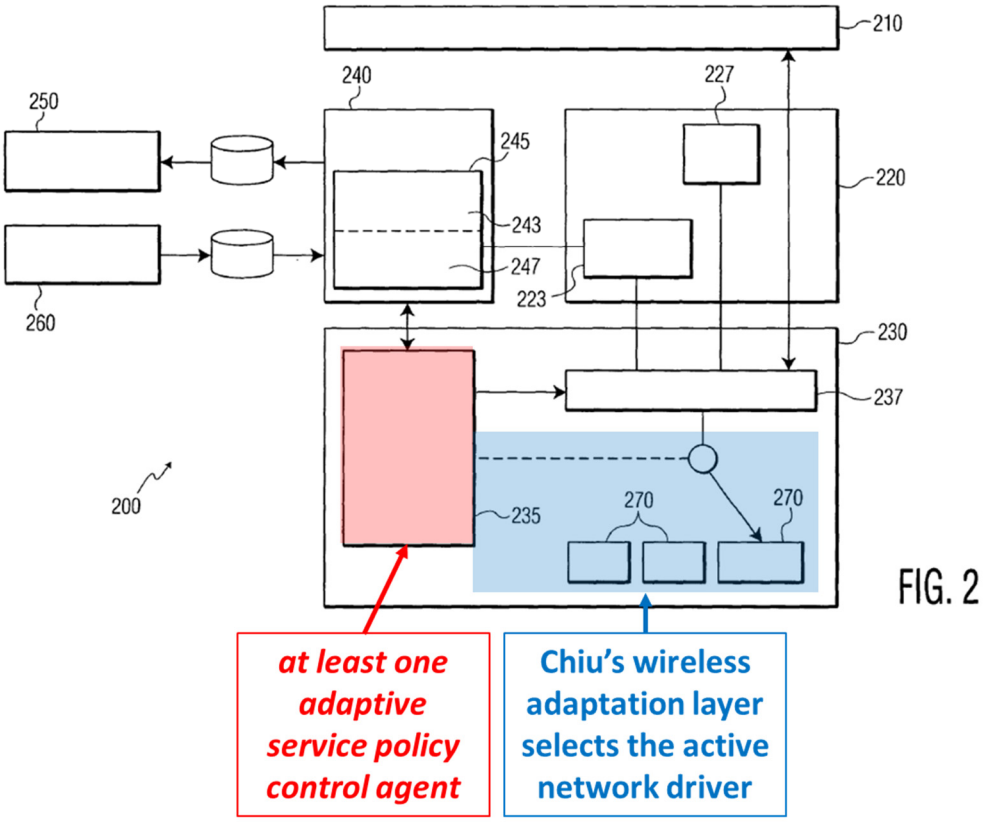


FIG. 2

SAMSUNG-1006, FIG. 2.

Ground 2A Mapping

Rao provides an additional example of an "***adaptive service policy control agent***." SAMSUNG-1007, ¶[0182]. Rao's remote access client ("***at least one adaptive service policy control agent***") enforces "one or more policies 520 for specifying client-side prioritization of network communications related to applications 338 a-338 n" ("***to enforce network service policies***") by intercepting, classifying, and filtering the application data traffic. SAMSUNG-1007, ¶[0182]. For instance, Rao's policies can define "prioritization" based on criteria such as: "the

name of the application," "the type of application," "the type of one or more protocols used by the application[s]," "the size of the payload of the network packet," "whether an application is running in the foreground or the background of the client," and/or "the destination network address, such as host name or IP address, and/or destination port number." SAMSUNG-1007, ¶[0182]. In the combination, Rao's policies would have been included in Chiu's connection profiles ("***the selected one of the first and second service profiles***") and stored on Jheng's USIMs, thus enabling the network operator to define prioritization policies for specific applications by issuing a consumer a USIM pre-loaded with these policies (as recognized in the art before the '055 Benefit Date, discussed above). SAMSUNG-1007, ¶¶[0109], [0179]-[0184]; SAMSUNG-1017, ¶¶[0043]-[0046], FIG. 2; *see supra*, §III.B.5; SAMSUNG-1003, ¶88. Rao's remote access client would have then effectuated these policies on application data traffic between the application and the network stack. *Id*.

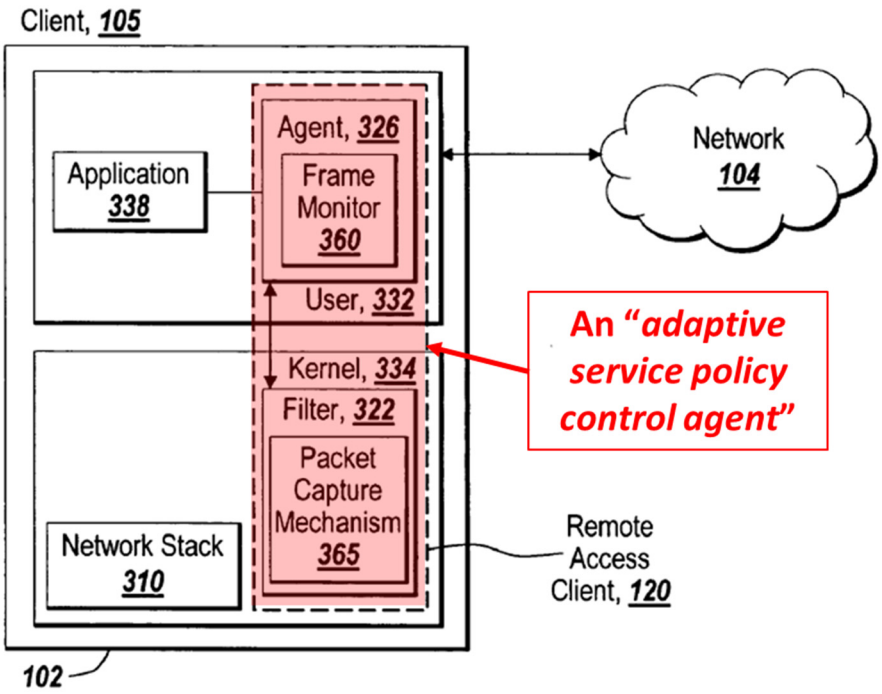


Fig. 1C

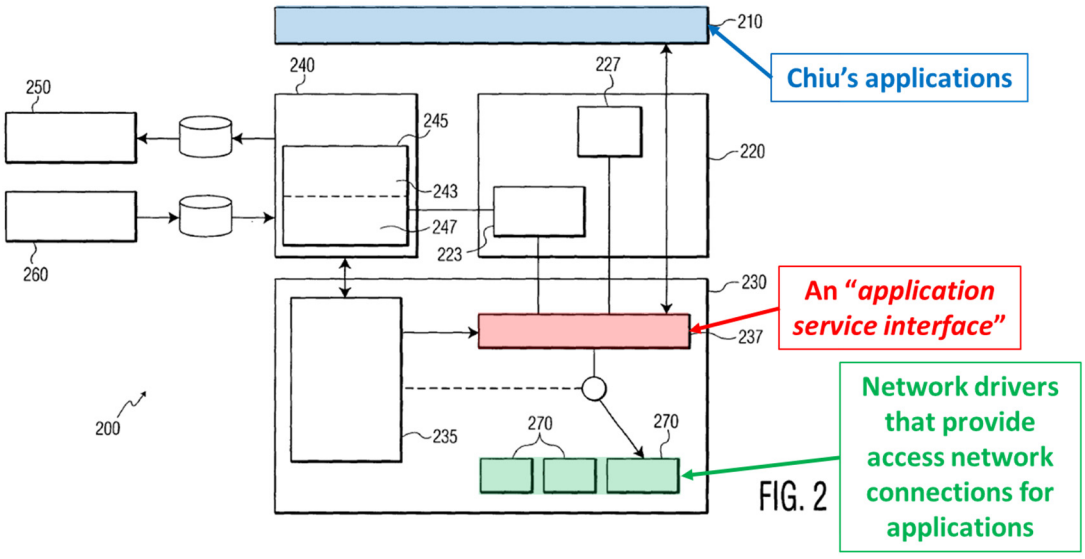
SAMSUNG-1007, FIG. 1C.

[1.6]

Ground 1A Mapping

Chiu's FIG. 2 (reproduced below) illustrates a wireless adaptation layer 325 controlling a tunneling interface 237 between applications 210 and network drivers 270. SAMSUNG-1006, FIG. 2. Chiu's tunneling interface ("***an application service interface***") is "exposed to the applications" on the device, "thereby enabling the network driver 270 to be dynamically changed without adversely affecting the application." SAMSUNG-1006, 13:9-13, 14:12-18, FIG. 2; SAMSUNG-1003,

¶89. The tunneling interface provides "a seamless transition between network connections of a different connection type" when a connection profile requires a change of network based on its selection criteria. *Id*. Additionally, Chiu's configuration parameters define network connection, which would have been applied at the tunneling interface (e.g., "parameters for automatically performing IP tunneling negotiation") ("***policies enforced at an application service interface on network data connections***"). *Id*. Finally, because the applications access the selected access network through the tunneling interface, these connections are "***for selected applications resident on the device***." *Id*.



SAMSUNG-1006, FIG. 2.

Ground 2A Mapping

Rao discloses a remote access client 120 ("***application service interface***") with an agent 326 and filter 322 that intercept and classify data packets transmitted

by applications in response to policies. SAMSUNG-1007, ¶¶[0099]-[0118], FIG. 1C; SAMSUNG-1003, ¶90. Rao's remote access client 120 is positioned between the applications 338 and the network stack 310 and provides access to network connections ("***an application service interface on network data connections for selected applications resident on the device***"). *Id.*

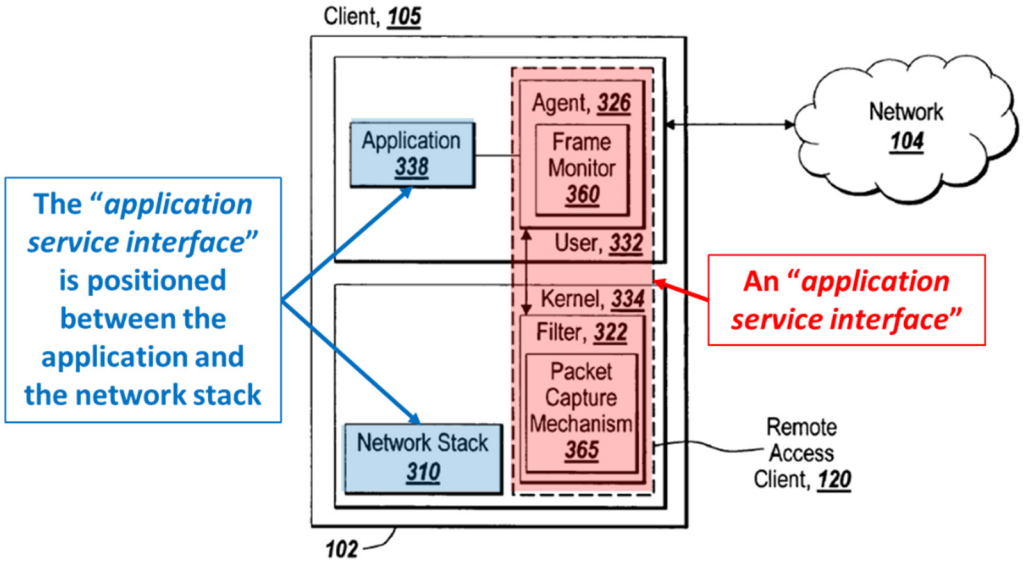


Fig. 1C

SAMSUNG-1001, FIG. 1C.

As discussed above in [1.2] and [1.5], Rao's remote access client enforces "one or more policies 520 for specifying client-side prioritization of network communications related to applications 338 a-338 n" ("***policies enforced … for selected applications resident on the device***") by intercepting, classifying, and filter-

ing the application data traffic ("***policies enforced at an application service interface on network data connections***"). SAMSUNG-1007, ¶[0182]. For instance, Rao's policies can define "prioritization" based on criteria such as: "the name of the application," "the type of application," "the type of one or more protocols used by the application[s]," "the size of the payload of the network packet," "whether an application is running in the foreground or the background of the client," and/or "the destination network address, such as host name or IP address, and/or destination port number." SAMSUNG-1007, ¶[0182]; SAMSUNG-1003, ¶91.

Rao's policies would have been included in Chiu's connection profiles and stored on Jheng's USIMs, thus enabling the network operator to define prioritization policies for specific applications by issuing a consumer a USIM pre-loaded with these policies (as recognized in the art before the '055 Benefit Date, discussed above). SAMSUNG-1007, ¶¶[0109], [0179]-[0184]; SAMSUNG-1017, ¶¶[0043]-[0046], FIG. 2; *see supra*, §III.B.5; SAMSUNG-1003, ¶92. Rao's remote access client would have then effectuated these policies on application data traffic between the application and the network stack (at "***an application service interface***"). *Id*.

[2.1]

The Jheng-Chiu combination, alone or in combination with Rao, render [2.1] obvious for multiple reasons, particularly in light of how broadly "credentials" are

described by the '055 patent. SAMSUNG-1001, 123:8-45; SAMSUNG-1003, ¶93.

Consistent with the '055 patent, Jheng's USIM card stores "a long-term preshared secret key K ('security credentials' or 'security key'), which is shared with the Authentication Center (AuC) in the network" ("***the first service profile further comprising first device credentials and the second service profile further comprising second device credentials***"). SAMSUNG-1005, ¶[0030]; SAMSUNG-1001, 123:8-45; *see supra*, [1.2]-[1.3]. A POSITA would have recognized and found obvious that the secret key K is used to authenticate both the USIM and mobile device when providing the mobile device access to the network ("***device credentials***"). SAMSUNG-1014, 141; SAMSUNG-1015, 26-27; SAMSUNG-1003, ¶94. For example, 3GPP TS 31.102 explains that the secret key K is used by the network to generate an authentication token (a "random number," or "RAND") which is shared with the USIM. SAMSUNG-1014, 141; SAMSUNG-1015, 26-27. Using the secret key K, common to both the USIM and network, the USIM decrypts the random number and sends the response to the network ("SRES") (sending "***device credentials***" to the network). *Id*. If the USIM successfully decrypts the random number (determined by the network also calculating a SRES value to which the USIM's response is compared), the USIM and mobile device are authenticated. *Id*.

Additionally, each of the first and second USIMs in the mobile station include a secret key K ("***first device credentials and … second device credentials***"). SAMSUNG-1005, ¶[0006], [0030], [0033]; *see supra*, [1.3]; SAMSUNG-1003, ¶95. A POSITA would have found obvious that, in most cases, the first and second USIM would contain different credentials as different service providers used different keys for authentication. *Id*.

Jheng also discloses that USIMs include a unique "international mobile subscriber identity (IMSI)" ("device identification number"—"***first device credentials and … second device credentials***"), which Jheng explains "is a unique number associated with a … network user." SAMSUNG-1005, ¶¶[0029]-[0030], [0032], [0038], [0042], [0051]; SAMSUNG-1001, 123:8-45. A POSITA would have recognized and found obvious that IMSIs are credentials in the context of GSM and GPRS networks, where this identification is primarily used. SAMSUNG-1005, ¶[0005] SAMSUNG-1003, ¶96.

Finally, Jheng discloses that each USIM is associated with a different "telephone number," which the '055 patent explicitly lists as a credential ("***first device credentials and … second device credentials***"). SAMSUNG-1005, ¶¶[0006], [0056], SAMSUNG-1001, 123:8-45; SAMSUNG-1003, ¶97.

[2.2]

The '055 patent describes that a "device master agent programs a unique

credential in [a] device that cannot be re-programmed or removed (or is difficult to re-program or remove) and that can be recognized and recorded by the network at the time of activation or at some other time," and that examples of this unique credential include "MEID, hardware MAC address, and/or serial number." SAMSUNG-1001, 120:23-40. Jheng and Chiu (with or without Rao) render [2.2] obvious for multiple reasons. SAMSUNG-1003, ¶98.

First, Chiu discloses that devices have a "MAC[]Address"—an explicit example of a "***device master agent credential***" described by the '055 patent. SAMSUNG-1006, 11:14-30. A MAC address is "***independent of the first and second device credentials***," at least because the MAC address of a device are independent of the device's USIM secret key, IMSI, and telephone number. SAMSUNG-1019, 31-33 (describing the MAC address as a "48-bit universal address" of hexadecimal code); SAMSUNG-1003, ¶99.

Second, Mobile Equipment Identifiers ("MEIDs") (a "***device master agent credential***") were well known before the '055 Benefit Date for identifying a mobile station on a Code Division Multiple Access ("CDMA") network—networks that are disclosed by Jheng. SAMSUNG-1005, ¶¶[0005], [0030]-[0031], [0033]; SAMSUNG-1003, ¶100. Accordingly, a POSITA would have found obvious that mobile stations communicating in a CDMA network (like Jheng's) would have included a MEID for the purposes of identifying the device to the network. *Id*. This

is particularly obvious because the use of MEID is established in 3GPP standard S.R0048-A. SAMSUNG-1018, 1-15; SAMSUNG-1003, ¶100. The MEID is a hexadecimal code that is independent of a device's USIM secret key, IMSI, and telephone number ("***independent of the first and second device credentials***"). SAMSUNG-1018, 9.

[6]

Jheng discloses a man-machine interface (MMI) ("***a user service interface***") that allows a user to make a manual selection that enables the non-roaming setting which "force[s] an [mobile originated] request to be issued to a called party via a cell … that a subscriber identity card camps on without roaming" ("***allow a user to make a user selection between the first and second service profiles***"). SAMSUNG-1005, ¶¶[0050], [0052], [0054]-[0055], [0057]-[0060], FIGS. 6, 9, 11; SAMSUNG-1003, ¶101.

As discussed above in [1.4], the connection manager would have selected a USIM (e.g., the non-roaming USIM) to connect to an access network, using the WWAN modem, after input is received from the user via the MMI (as disclosed by Jheng) ("***the connection manager to, responsive to the user selection, select an access network connection for the WWAN modem***"). SAMSUNG-1006, 4:29-5:2, 6:8-22, 10:16-20, 13:4-14:18; *see supra*, [1.4]. By selecting one of the USIMs, the user effectively selects a corresponding service profile stored on the

selected USIM (e.g., a "preferred subscriber identity card" selected "by the user through interactions with the MMI") and access network connection associated with the selected USIM ("a cell … that a subscriber identity card camps on without roaming"). SAMSUNG-1005, ¶¶[0050], [0052], [0054]-[0055], [0057]-[0060], FIGS. 6, 9; SAMSUNG-1003, ¶102. The selection of the access network is "***responsive to***" the user selecting the particular USIM. *Id*.

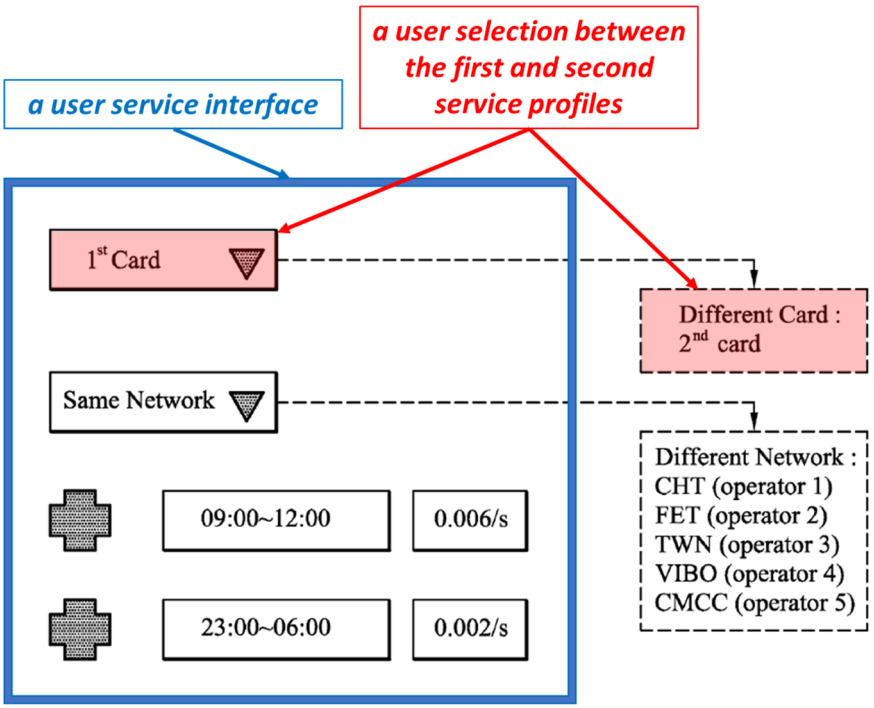


FIG. 11

SAMSUNG-1005, FIG. 11.

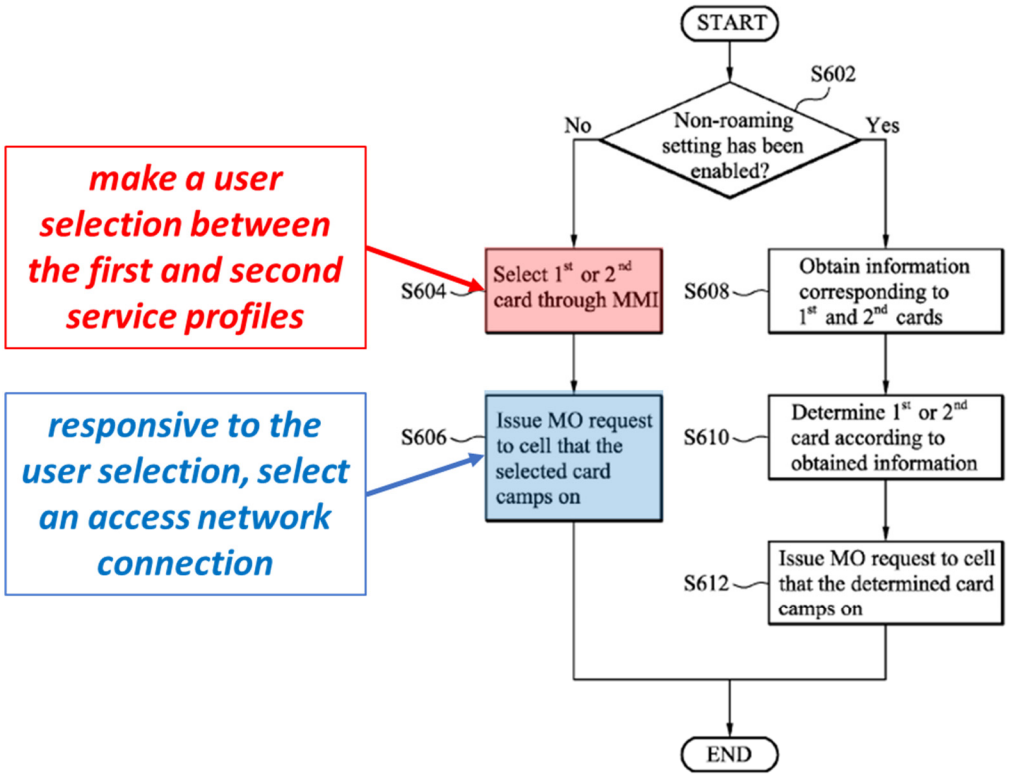


FIG. 6

SAMSUNG-1005, FIG. 6.

[7]

Jheng's man-machine interface (MMI) ("***a service notification and billing interface***") is used by a user to enable the non-roaming setting which "force[s] an MO request to be issued to a called party via a cell … that a subscriber identity card camps on without roaming." SAMSUNG-1005, ¶¶[0050], [0052], [0054]-[0055], [0057]-[0060], FIGS. 6, 9, 11. "The MMI may comprise screen menus and icons, command language and online help displayed on a display of the mobile station with at least one input device." SAMSUNG-1005, ¶[0050]. Jheng's MMI

displays available networks and billing information for those networks, for each USIM, as illustrated below in FIG. 11 ("***display service usage options for each of the first and second service profiles***"). SAMSUNG-1005, ¶¶[0050], [0056]-[0057], FIG. 11; SAMSUNG-1003, ¶103.

Additionally, Chiu's profile database allows a user to browse available connection profiles on their mobile station, and to allow the user to fine-tune a profile prior to downloading (thus displaying "***service usage options***" for these connection profiles). SAMSUNG-1006, 8:26-9:10. In the combination, Jheng's MMI would have been modified to incorporate Chiu's functionality of displaying available connection profiles stored in a profile database, and further would have allowed the user to modify these profiles, as taught by Chiu. SAMSUNG-1005, ¶¶[0050], [0052], [0054]-[0055], [0057]-[0060], FIGS. 6, 9, 11; SAMSUNG-1006, 8:26-9:10. Thus, Chiu's teachings provide another example of "***a service notification and billing interface***." SAMSUNG-1006, 8:26-9:10; SAMSUNG-1003, ¶104.

To the extent it is argued that the "***service notification and billing interface***" must display "***billing***" information (which is not required by [7]), Jheng's MMI displays such information, as illustrated below in FIG. 10 ("0.006/s" for service between "0:900-12:00"). SAMSUNG-1005, ¶¶[0056]-[0057], FIG. 10. A POSITA would have understood that "***billing***" messages encompass ***service notification and billing*** information regarding a service bill including the rate at which service

charges are applied (e.g., 0.006/s) ("the network operator may send an Advice of Charge (AOC) message regarding call cost per unit time to the mobile station for the ongoing MO call"). SAMSUNG-1003, ¶105. Chiu similarly discloses that its selection criteria include "billing information." SAMSUNG-1006, 8:11-17.

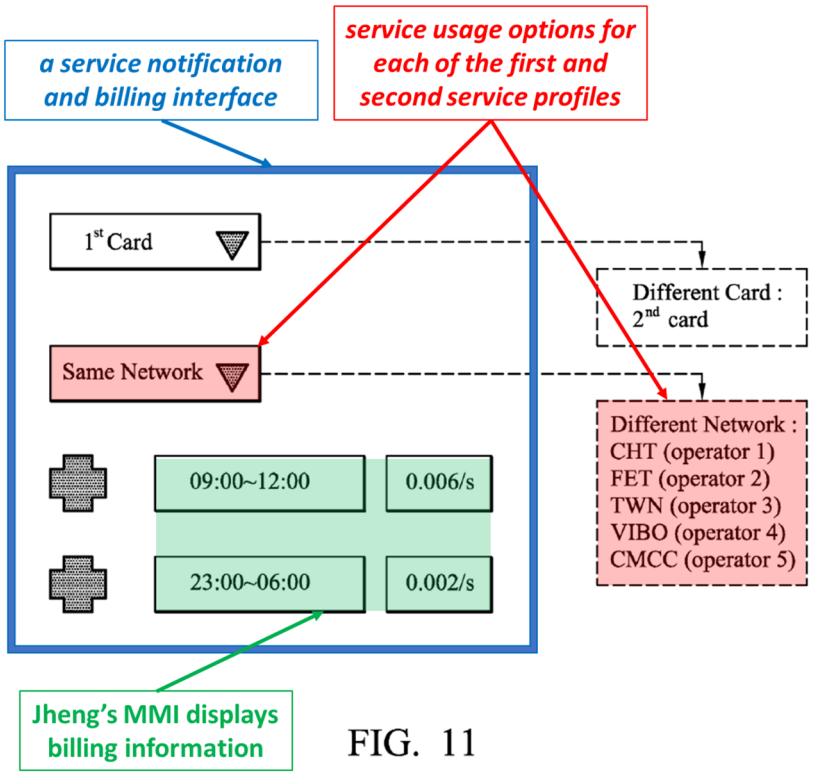


FIG. 11

SAMSUNG-1005, FIG. 11.

[9]

Ground 1A Mapping

Chiu's connection manager can detect "[i]f the selected network connection ceases to satisfy the selection criteria," (e.g., "a link quality of the selected network connection, cumulative access fees associated with the selected network connection, an amount of time that the selected network connection has been activated, a

location of the portable device, or a remaining battery capacity of the portable device") and in response, "activate a new network connection" ("***changes from the first wireless network to the second wireless network***"). SAMSUNG-1006, 6:8-22. Chiu's wireless adaptation layer ("***at least one adaptive service policy control agent***") "switches data flow to the appropriate network driver 270" in response to instructions from the connection manager. SAMSUNG-1006, 8:11-25; 13:27-14:6. As discussed above in [1.4], upon receiving an indication that the selected network no longer satisfies the selection criteria, the connection manager would have subsequently instructed the wireless adaptation layer to select a new network driver corresponding to the network service policies of the new network and associated USIM (e.g., the selection criteria and configuration parameters of the connection profile) ("***in response enforces the second set of network service policies***"). *Id.*; SAMSUNG-1003, ¶106.

Ground 2A Mapping

As discussed above in [1.5], Rao's remote access client ("***at least one adaptive service policy control agent***") enforces "one or more policies 520 for specifying client-side prioritization of network communications related to applications 338 a-338 n." SAMSUNG-1007, ¶[0182]. Rao's remote access client detects a change in network when the client device "moves from a first wireless network to a second wireless network" ("***detects network connection changes from the first***

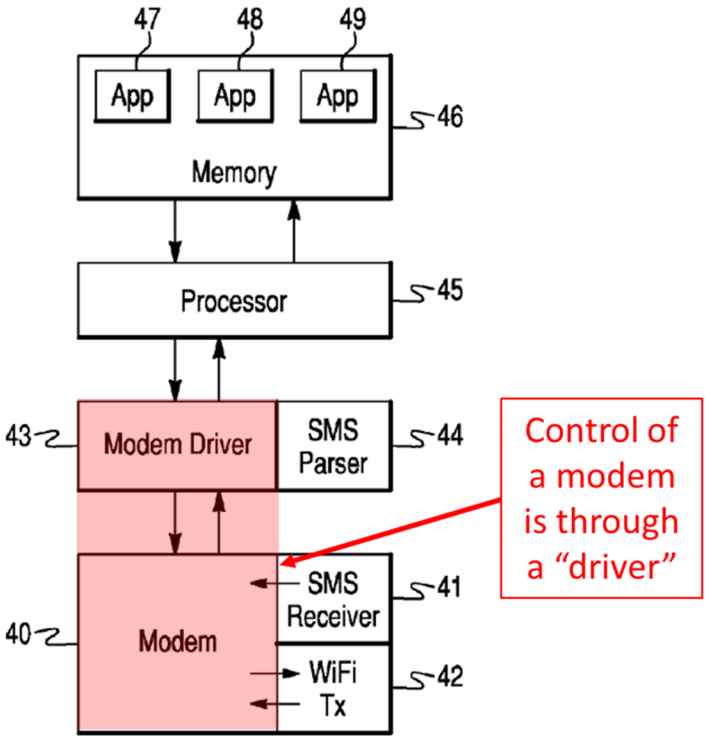
wireless network to the second wireless network"). SAMSUNG-1007, ¶[0217].

A POSITA would have recognized and found obvious that the remote access client would have "***enforce[d] the second set of network service policies***" after switching to the second wireless network, because as discussed above in [1.3], Rao's "***second set of network service policies***" would have been particular to the "***second wireless network***." SAMSUNG-1007, ¶¶[0099]-[0118], [0179], FIG. 1C; SAMSUNG-1003, ¶107.

[10]

As Dr. Traynor explains, it would have been obvious to a POSITA that Chiu's drivers provided operational control of network interfaces (e.g., modems) because network drivers were used to control wireless modems in wireless devices. SAMSUNG-1024, ¶¶[0035]-[0039], FIG. 4; SAMSUNG-1003, ¶108. For example, the prior art reference, Papineau, explains that modems "communicate with [a] processor 45 through a modem driver 43" and that "[d]ata and instructions intended for the modem are sent to the modem driver 43 which formats the data and instructions in a manner suitable for the modem 40." *Id*.

Fig. 4



SAMSUNG-1024, FIG. 4.

Chiu's data link control layer 230 ("***a modem selection and control layer***") includes the wireless adaptation layer that "switches data flow to the appropriate network driver 270" ("***modem selection***") in response to instructions from the connection manager ("***routes … data traffic to the first wireless network and … the second wireless network***"). SAMSUNG-1006, 13:27-14:6, FIG.2 (reproduced below). As depicted in FIG. 2, the combination device included multiple drivers 270, which would have each controlled a separate modem. *Id*. For example, Rao discloses that devices can include network interfaces for different network types, to

include a "Local Area Network (LAN)" and a "Wide Area Network (WAN)," indicating that multiple modems would have been included in the combination device to allow for connection to these networks (e.g., a WWAN modem and a WLAN modem). SAMSUNG-1007, ¶[0125]. Similarly, Chiu also describes that its devices connect to a plurality of network types (e.g., "WWAN" and "WLAN"). SAMSUNG-1006, 7:17-22, 9:25-10:11; SAMSUNG-1003, ¶109.

Additionally, the data link control layer 230 includes the network drivers that a POSITA would have recognized and found obvious provided operational control of the WWAN modem ("***modem … control***"). SAMSUNG-1024, ¶¶[0035]-[0039], FIG. 4; SAMSUNG-1003, ¶110; *see infra*, [12].

It would have been an obvious design choice for a POSITA to place the "***modem selection and control layer***" within the "***connection manager***" as the connection manager controls the operation of the data link control layer 230 in selecting a suitable network driver for network connection. SAMSUNG-1006, 7:17-22, 9:25-10:11, 13:27-14:6; *Ex parte Spangler*, Appeal No. 2018-003800 (Feb. 20, 2019) (informative); *KSR*, 550 U.S. at 421; SAMSUNG-1003, ¶111. For example, this arrangement would have realized efficiencies within the combination device, allowing the connection manager to select a network connection by directly communicating with the appropriate interface (e.g., a modem). *Id*. The ability of a connection manager to directly interface with modems on a wireless device was

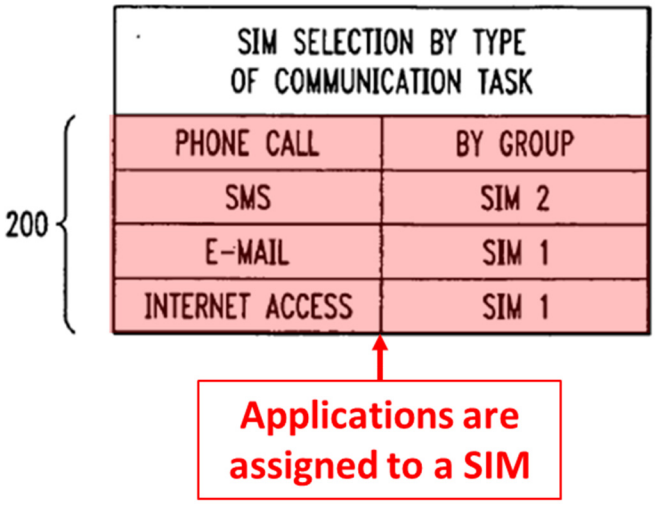
also known before the Benefit Date, corroborating that this design choice was used in the art. SAMSUNG-1016, ¶¶[0035]-[0036], FIG. 2 (disclosing a connection manager that manages "communication interfaces" that can be a "WWAN modem"); SAMSUNG-1003, ¶111.

Additionally, it would have been obvious to a POSITA that the "***modem selection and control layer***" can be placed in various suitable locations, e.g., outside or within the "***connection manager***" because the function of the "***modem selection and control layer***" would be the same regardless of whether it is placed inside of or connected to the connection manager. Indeed, placing the "***modem selection and control layer***" within the connection manager has no patentable weight as this would have been the mere rearrangement of known parts without any functional change in the operation of those parts (e.g., placing the known "***modem selection and control layer***" in a "***connection manager***" where the modem selection and control layer performs its same functions). *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950); SAMSUNG-1006, 13:4-13; SAMSUNG-1003, ¶112. Using a "***connection manager***" to control and select modems was known in the art before the Benefit Date, and would have been known to a POSITA. SAMSUNG-1016, ¶¶[0035]-[0036], FIG. 2; *KSR*, 550 U.S. 421; SAMSUNG-1003, ¶112.

Further, a POSITA would have understood and found obvious that the appli-

cation of policies would have been based, at least in part, on the "***type of data***" being communicated (and thus, the routing of data by the wireless adaptation layer). SAMSUNG-1017, ¶¶[0043]-[0046], FIG. 2; SAMSUNG-1003, ¶113. For example, Landschaft discloses a dual SIM phone where applications are assigned to a particular SIM (e.g., "SMS" to "SIM 2"). *Id*. The need to delegate certain "***type[s]***" of traffic to particular networks to avoid unacceptable resource consumption while roaming was also well known in the art (e.g., performing data-intensive activities on a non-roaming network). SAMSUNG-1016, ¶¶[0088]-[0089]; SAMSUNG-1003, ¶113. For example, Cole describes a scenario where a file synchronization is usually performed on a local network, and completion of this activity is deferred until an equivalent network becomes available. SAMSUNG-1016, ¶[0089]. Cole provides another example where a data intensive activity performed on a public WWAN is deferred until a local network is encountered. SAMSUNG-1016, ¶[0088].

FIG. 2



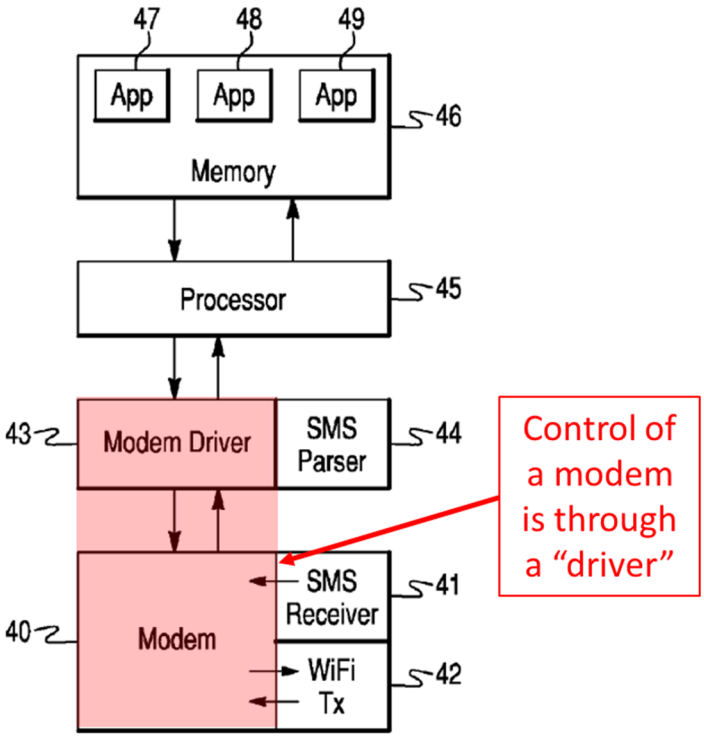
SAMSUNG-1017, FIG. 2.

[12]

Chiu's connection manager scans available networks, and once a network connection is selected, the connection manager "uses its stored profile to activate the detected connection using the network configuration information associated with the connection type of the available network connection." SAMSUNG-1006, 13:27-14:6. Recall from [2.1] that USIMs and connection profiles are associated with credentials (e.g., a "secret key K"). SAMSUNG-1005, ¶[0030]; *see supra*, [2.1]. Once a selection has been made, the connection manager 240 "communicates this information to the wireless adaptation layer 235 which switches data flow to the appropriate network driver 270." *Id*. By selecting the appropriate net-

work driver, Chiu's connection manager "***prompt[s] the WWAN modem to connect to a selected access network***." SAMSUNG-1006, 13:27-14:6; SAMSUNG-1024, ¶¶[0035]-[0039], FIG. 4; SAMSUNG-1003, ¶114.

Fig. 4



SAMSUNG-1024, FIG. 4.

A POSITA would have recognized and found obvious that the network driver provided operational control of the WWAN modem because network drivers were used to control wireless modems in wireless devices. SAMSUNG-1024, ¶¶[0035]-[0039], FIG. 4; SAMSUNG-1003, ¶115.

Additionally, Jheng's "secret key K" which is "available only to the USIM and the AuC" is used to generate an authentication token that is transmitted and

used to authenticate the mobile station to the network upon connection. SAMSUNG-1005, ¶[0030]; SAMSUNG-1014, 141. Thus, and as discussed above in [1.2], a POSITA would have recognized and found obvious that "***credentials associated with the selected one of the first and second service profiles***" would have been sent to the "***selected access network***" by the connection manager as this would have been part of the device's mutual authentication with the network. SAMSUNG-1005, ¶[0030]; SAMSUNG-1014, 141; SAMSUNG-1003, ¶116.

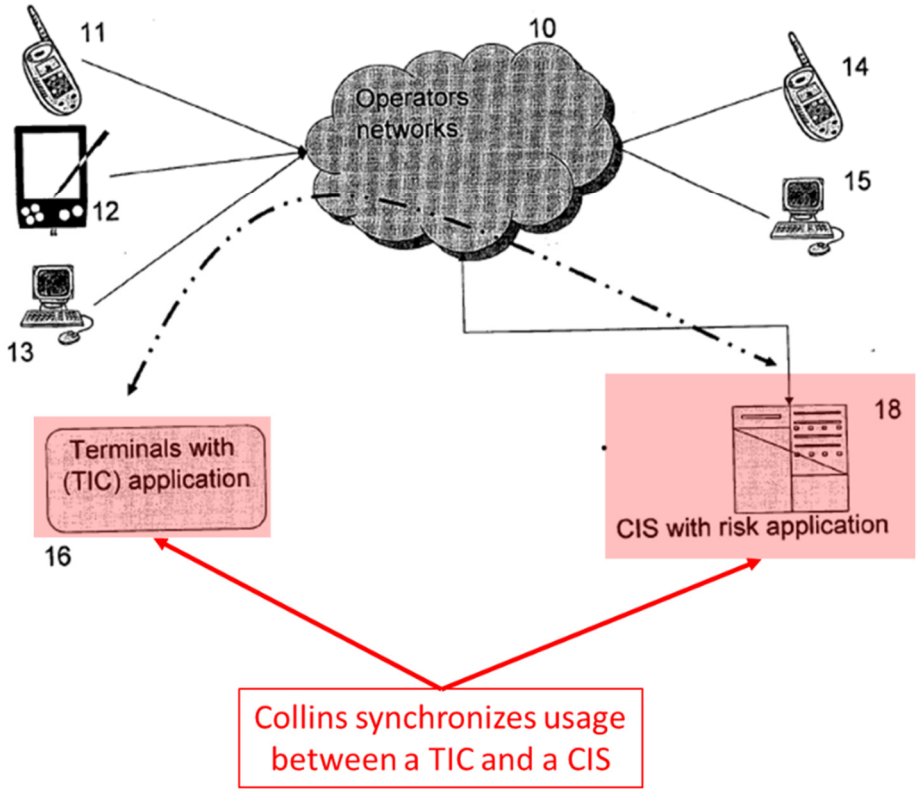
C. GROUNDS 1B AND 2B

1. Overview of Collins

Collins discloses a Terminal Information Collector (TIC) that collects usage information relating to "each activity or session that occurs through the network," for example, "URLs of websites visited" and "addresses and sizes of received and sent SMS messages." SAMSUNG-1008, ¶¶[0025], [0037], [0039], [0041], [0049]-[0050], FIGS. 1 (reproduced below), 3. A central information server (CIS) receives usage information from each device's TIC for each network and operator where an associated device accrues usage. SAMSUNG-1008, ¶¶[0035]-[0045], FIG. 2. Data consumption for a consumer is "recorded in the network" and "then compared to the information sent from the TIC to the CIS" (synchronizing the two different values of consumption—the consumption calculated by the network with the consumption reported by the TIC). SAMSUNG-1008, ¶[0084]. If the resulting

two values differ by a threshold amount, the CIS "raise[s] an event alarm." SAMSUNG-1008, ¶[0092]; SAMSUNG-1003, ¶32.

Fig 1.



SAMSUNG-1008, FIG. 1.

2. Combination of Collins with Jheng-Chiu with or without Rao

It would have been obvious to a POSITA to combine Jheng-Chiu/Jheng-Chiu-Rao (hereinafter collectively referred to as the "**JCR system**") and Collins to incorporate Collins' techniques of monitoring data usage and synchronizing or providing data usage information from the TIC to the CIS for at least the reasons noted below. SAMSUNG-1008, ¶¶[0025], [0035]-[0045], [0049]-[0050], FIGS. 1-

3; SAMSUNG-1003, ¶117.

First, Collins' techniques enhance the security of JCR's wireless network. SAMSUNG-1003, ¶118. For example, Collins provides a means to alert a service provider to fraud and security issues, which would have beneficially minimized security risks and reduced potential loss of revenue. SAMSUNG-1008, ¶¶[0012], [0016], [0038], [0042]-[0045], [0047], [0065], [0090]-[0091]. Collins discloses that the CIS can detect "fraudulent use pattern[s]" by comparing the TIC reported usage with usage identified by the network operator. SAMSUNG-1008, ¶¶[0129]-[0130]. By continually synchronizing usage between a device and the network operator, the CIS can timely alert the operator to indications of fraud (e.g., the cloning of SIM credentials). *Id.*; SAMSUNG-1003, ¶118.

Second, Collins' techniques of monitoring data usage would have provided implementation details for determining billing related to the data usage of the combination device, as disclosed by Jheng. SAMSUNG-1005, ¶[0057]; SAMSUNG-1008, ¶¶[0025], [0037], [0039], [0041], [0049]-[0050], FIGS. 1, 3; SAMSUNG-1003, ¶119. For example, Collins' techniques provide a means for determining data usage local to the device, similar to Jheng, and the monitoring data usage with a remote CIS would help ensure accurate billing for data usage in the JCR system. SAMSUNG-1008, ¶¶[0025], [0035]-[0045], [0049]-[0050], FIGS. 1-3.

Incorporating Collins' data usage provision techniques into the dual-SIM

phone or USIMs in the JCR system would have been predictable and foreseeable with a reasonable expectation of success at least because Collins's TIC application "can reside in …[a] secure storage device (SIM/USIM or similar)." SAMSUNG-1008, ¶¶[0011]-[0022], [0039]; SAMSUNG-1005, ¶[0030]. Further, Collins discloses that its methods can be used in a "dual-SIM terminal," such as Jheng's mobile device. SAMSUNG-1008, ¶[0126], FIG. 4; SAMSUNG-1003, ¶122.

The combination of Collins with the JCR system would also have been predicable because Jheng discloses similar functionality (e.g., analyzing the charging information) to Collins' TIC suggesting that the Jheng dual-SIM phone would have modified to implement local data usage monitoring, as taught by Collins, through routine skill of one in the art. SAMSUNG-1005, ¶[0057]; SAMSUNG-1003, ¶123. Indeed, the implementation of Collins' data usage synchronization techniques would have involved only routine coding ability that would have been well within a POSITA's capability (e.g., coding the functions of Collins' TIC and CIS as machine readable code to be executed by the combination device's processors). *Keynetik, Inc*., 2023 WL *2; SAMSUNG-1003, ¶123.

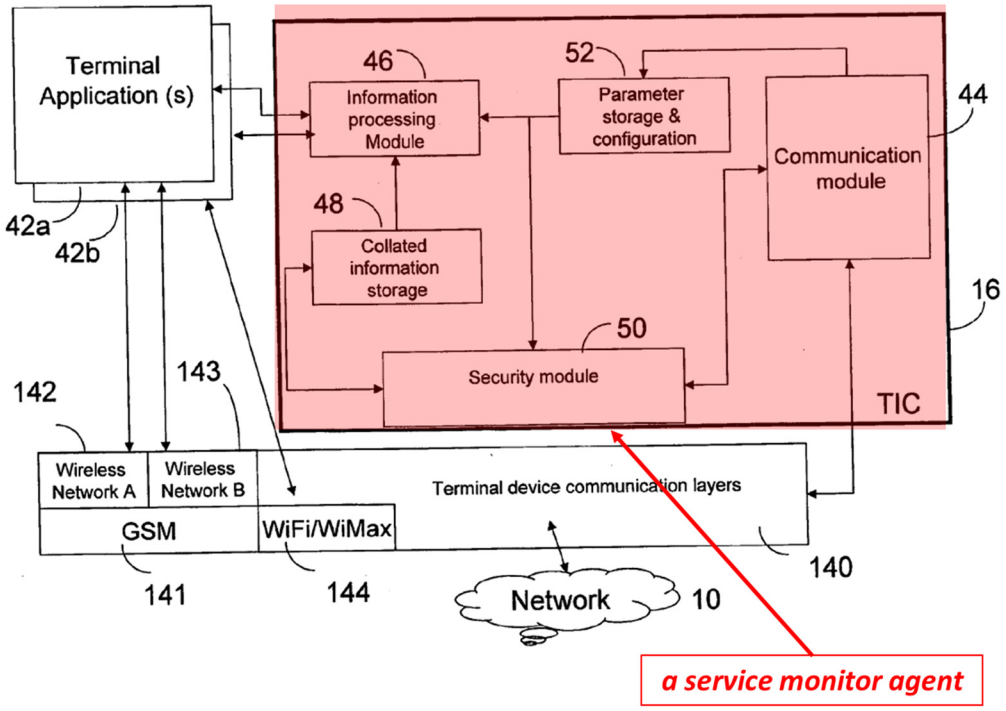
Further, logging service data was well known before the '055 Benefit Date, as evidenced by other publications. SAMSUNG-1023, 189-191; SAMSUNG-1003, ¶124. For example, the Symbian operating system logged services used by the device to determine data consumption. SAMSUNG-1023, 189-191.

3. Analysis

[3]

Collins' Terminal Information Collector (TIC) 16 collects usage information relating to "each activity or session that occurs through the network," for example, "URLs of websites visited" and "addresses and sizes of received and sent SMS messages" (e.g., at least network and application usage ("***network service usage***")). SAMSUNG-1008, ¶¶[0025], [0037], [0039], [0041], [0049]-[0050], [0120]-[0123], FIGS. 1, 3-4 (FIG. 4 reproduced below depicting a TIC collecting usage information for a plurality of networks). A POSITA would have understood that Collins' TIC 16 is an agent that monitors network service and thus would have rendered obvious a "***service monitor agent***." SAMSUNG-1003, ¶¶125-126.

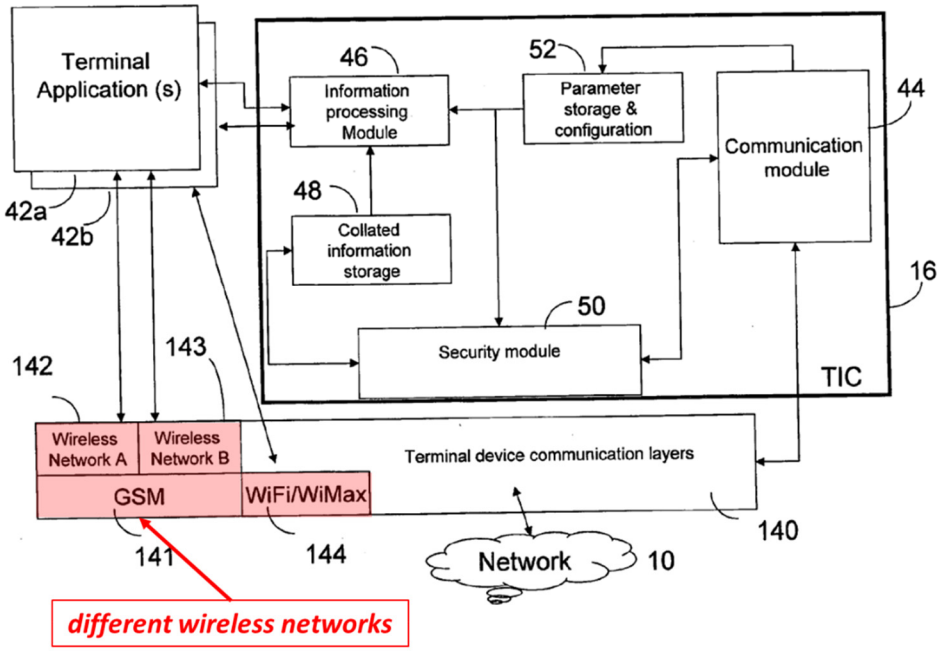
FIG 4.



SAMSUNG-1008, FIG. 4.

Collins discloses that each network is associated with an operator which has a central information server (CIS) that receives usage information from each device's TIC. SAMSUNG-1008, ¶¶[0035]-[0045], FIG. 2. The usage information is collected for *each* network, for example, "a GSM layer 141 and a WiFi/WiMax 144" ("***usage categorized by sub-account for different wireless networks***"). SAMSUNG-1008, ¶¶[0120]-[0127], FIG. 4 (reproduced below). Accordingly, it would have been obvious to a POSITA that each user's account would have a sub-account that records the usage information for the user for a particular wireless network. SAMSUNG-1003, ¶127.

FIG 4.



SAMSUNG-1008, FIG. 4.

Further, Collins's methods can be used in a "dual-SIM terminal" (e.g., JCR's mobile station) that includes a TIC for each network operator. SAMSUNG-1008, ¶[0126]. And recall from [1.2] and [1.3], that each USIM is associated with a fare plan. SAMSUNG-1005, ¶¶[0056]-[0060], FIG. 10; Because each USIM and service plan is associated with an operator and each TIC reports usage associated with its network and USIM to the appropriate network operator, it would have been obvious to a POSITA that JCR+Collins renders obvious "***usage categorized by sub-account … including separate service usage counts associated with each of the first service plan and the second service plan***". SAMSUNG-1008, ¶[0058]-[0060], [0064] (describing that the TIC "collate[s] the information in counters" on

the device, an aggregation of total service usage (a "***count***")), [0126], FIG. 4; SAMSUNG-1003, ¶128.

[4]

As discussed above in [3], Collins discloses that each network is associated with an operator which has a CIS that receives usage information from each device's TIC. SAMSUNG-1008, ¶¶[0008], [0035]-[0045], [0061], [0092], FIG. 2. Each TIC reports "information relating to each activity or session that occurs through the network" ("***a local service usage count***") to the CIS, which records the information ("***a network-based service count***"). SAMSUNG-1008, ¶¶[0041]-[0048], [0058]-[0060], [0064]. In Collins, the information collected by the TIS and associated CIS is synchronized to determine their similarity, and to the extent the consumption of data differs between the TIS and its associated CIS, "the CIS can raise an event alarm" ("***the wireless end-user device synchronizes a local service usage count with a network-based service count***"—the TIC reporting to the CIS). SAMSUNG-1008, ¶[0092]. Collins explains that the synchronization of data between the TIC and CIS is important for "fraud detection, revenue assurance and legal interception," which as Dr. Traynor explains, were all known concerns in wireless networks that would have been obvious to address through synchronization before the '055 Benefit Date. *Id.*; SAMSUNG-1003, ¶129. Additionally, as explained in [3] above, each USIM has a TIC, and therefore Collins' techniques

would have been performed "***for at least one of the first and second service plans***." SAMSUNG-1008, ¶¶[0120]-[0127], FIG. 4; *see supra*, [3]; SAMSUNG-1003, ¶129.

D. GROUNDS 1C AND 2C

1. Overview of Camilleri

Camilleri discloses a 'proprietary applications module' (PAM) that "is connected to, or built into, a wireless device (WD). The PAM is capable of switching all incoming traffic by associating the WD to one specific subscriber identity sub-module, referred to as 'Local SIM' (LS). SAMSUNG-1009, Abstract, SAMSUNG-1009, ¶¶[0044]-[0046]. It can also switch or re-route all outgoing traffic by associating the same WD with a different subscriber identity sub-module, typically a 'Roaming SIM' (RS)." *Id*. The RS allows a user of the WD to keep an original number associated with the LS while also benefitting from the advantageous call tariffs for the end-user when originating calls with such RS from the country in which the user resides compared to calls tariffs when originating calls with the user's LS from the country in which the user resides. SAMSUNG-1009, ¶¶[0044]-[0046]. RS and LS are provided by a Mobile Virtual Network Operator (MVNO) configured by the PAM. SAMSUNG-1009, ¶[0047]. The MVNO can compete even in the country of its own LHWN for international call tariffs, and definitely abroad when its WD users are roaming. *Id*. This is an advantage that few or no

other MVNOs have in the country of their own LHWN, allowing subscribers to this innovative MVNO to make use of any of the Wireless Networks, using the PAM and RS in their own devices; this will always ensure the best available wireless coverage. SAMSUNG-1009, ¶[0047]; SAMSUNG-1003, ¶33.

2. Combination of Camilleri with Jheng-Chiu with or without Rao

It would have been obvious to a POSITA to combine Camilleri with the JCR system such that a PAM integrated into each of the device USIMs would switch the USIMs between LS and RS sub-modules, and at least one USIM sub-module in the dual-SIM combination device would have been associated with a MVNO for at least the reasons noted below. SAMSUNG-1005, ¶[0033], FIG. 1; SAMSUNG-1009, ¶¶[0040]-[0048]; SAMSUNG-1003, ¶130.

First, Camilleri's PAM and SIM sub-modules would have increased the versatility of the USIMs of the JCR dual-SIM phone by allowing a user to combine multiple sets of SIM parameters into a single USIM (e.g., RS and LS sub-modules). SAMSUNG-1009, ¶¶[0041]-[0046]. Configuring USIMs to store multiple SIM sub-modules would have allowed the user to configure their device for more networks than would have been possible without these sub-modules (e.g., a dual-SIM device would have been able to be configured for four networks). *Id.*; SAMSUNG-1003, ¶131.

Second, MVNOs "introduc[e] more competition in the wireless and/or cellular marketplace, greatly benefiting end-users" by facilitating "more competitive lower pricing" e.g., through lower international call tariffs and roaming charges. SAMSUNG-1009, ¶¶[0044], [0047]. To ensure that the JCR device would remain competitive in a world with MVNOs that provide comparable service to the consumer at a lower cost, the techniques of the combination device would have been made to be compatible with these MVNOs. *Id*. Due to the emergence of these network operators, a POSITA would have reasonably expected that at least one MVNO would have issued a SIM to a customer using the JCR device. *Id*.; SAMSUNG-1003, ¶132.

Third, a POSITA would have been motivated to include MVNO compatibility (e.g., the ability to use a USIM issued by a MVNO) in the JCR system because such a modification would have resulted in additional revenue for the operators of core networks associated with these MVNOs. SAMSUNG-1003, ¶133. For example, Thanh discloses that the "MVNO has to pay to the [Mobile Network Operator (MNO)] for both outgoing and incoming calls." SAMSUNG-1022, 3-5. The MNO would have been able to negotiate favorable terms as the MVNO "may rely almost totally on the MNO's facilities." *Id*.; SAMSUNG-1003, ¶133.

Providing MVNO compatibility in the JCR system would have been predictable and foreseeable with a reasonable expectation of success because MVNOs

were well established by the '055 Benefit Date. SAMSUNG-1005, ¶[0033], FIG. 1; SAMSUNG-1009, ¶¶[0040]-[0048]; SAMSUNG-1022, 3; SAMSUNG-1003, ¶136. For example, Thanh confirms that the presence of MVNOs "goes back to the early nineties" and describes various MVNO business models known in the industry before the '055 Benefit Date. SAMSUNG-1022, 3-5. Additionally, Camilleri explicitly discloses that its PAM is implemented within a SIM, the same structure already present within the JCR dual-SIM phone. SAMSUNG-1009, ¶[0041].

3. Analysis

[5]

'055 patent generally describes Mobile Virtual Network Operators ("MVNO"). SAMSUNG-1001, 9:38-42, 14:44-48, 20:9-16; SAMSUNG-1003, ¶137. The '055 patent also describes that the central provider network "generally refers to the access network required to connect the device to other networks." SAMSUNG-1001, 9:19-21. The '055 patent depicts the central provider as a "core network." *See, e.g.*, SAMSUNG-1001, FIG. 2.

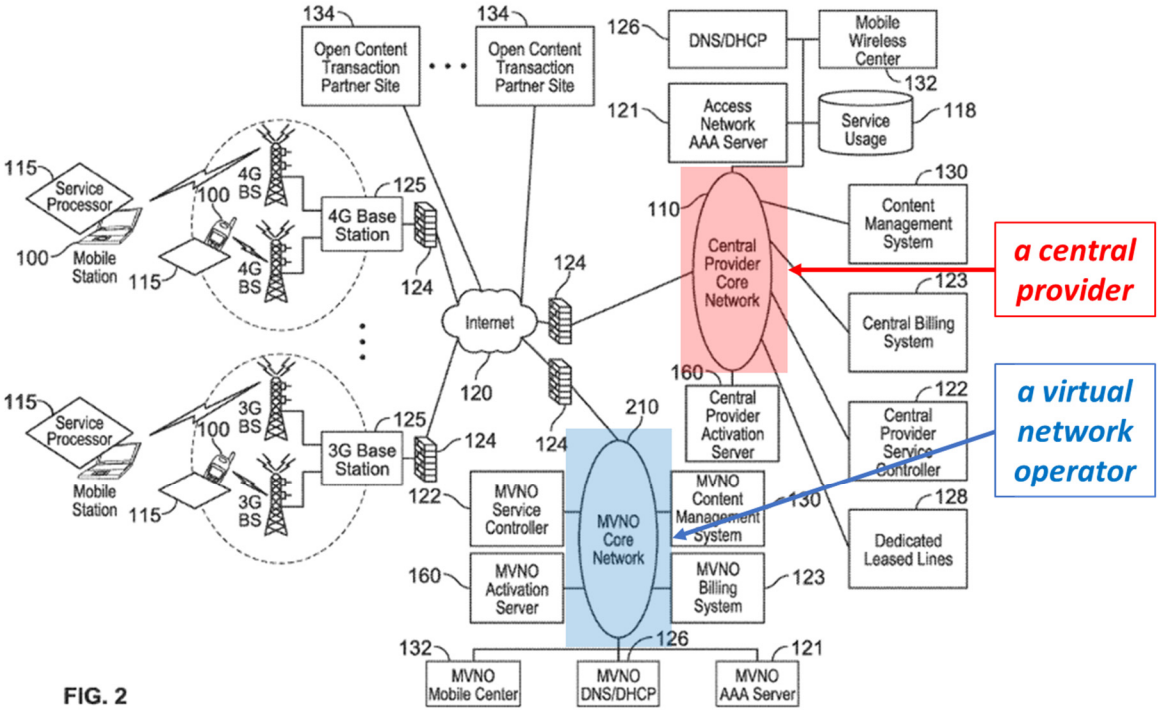


FIG. 2

SAMSUNG-1001, FIG. 2.

Jheng's access networks are used to access "core networks" (a plurality of "***central provider[s]***") and in combination with Camilleri, at least one of these networks would have been operated by an "MVNO" ("***a virtual network operator***"), as described above in the preceding section. SAMSUNG-1005, ¶[0033], FIG. 1; SAMSUNG-1009, ¶¶[0044], [0046]-[0047]; SAMSUNG-1001, 25:49-57 (describing that a "central provider network" is a "core" network). In the combined JCR-Camilleri system, Camilleri's MVNO provides a SIM to the user, and thus the fare plan associated with the SIM (as discussed above in [1.2]) is associated with the MVNO ("***the second service plan is associated with a virtual network operator***"). SAMSUNG-1005, ¶¶[0056]-[0060]; SAMSUNG-1009, ¶[0044]; *see supra*, [1.2];

SAMSUNG-1003, ¶138. A USIM is also associated with the other core network, and would have similarly included a fare plan (also as discussed above in [1.2]) ("***the first service plan is associated with a central provider that operates a WWAN access network***"). *Id*.

E. GROUNDS 1D AND 2D

1. Overview of Bajko

Bajko discloses a common service profile that includes a "common feature that refers to common services" ("subscriptions") associated with a plurality of IP Multimedia Private Identities ("IMPIs") including service profiles stored on separate SIM cards. SAMSUNG-1010, ¶¶[0014], [0039]-[0041], FIG. 4. Bajko's subscriptions are used by a home subscriber server (HSS) to provide services (e.g., calls, browsing, multimedia) in a 3GPP IP Multimedia Subsystem ("IMS"). SAMSUNG-1010, ¶¶[0035]-[0041], FIG. 2; SAMSUNG-1003, ¶34.

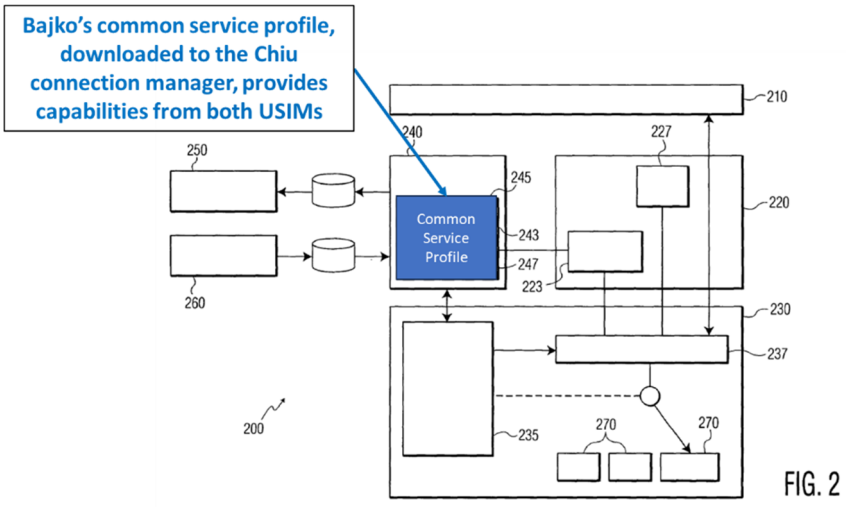
2. Combination of Bajko with Jheng-Chiu with or without Rao

It would have been obvious to a POSITA to combine Bajko with the JCR system to implement Bajko's common service profile on the JCR device. SAMSUNG-1010, ¶¶[0014], [0039]-[0041], FIG. 4; SAMSUNG-1003, ¶139. A POSITA would have been motivated to include the teachings of Bajko with the JCR device because, as Bajko discloses, any one subscription may contain "a plurality of public and private identities." SAMSUNG-1010, ¶[0039]. A POSITA

would have recognized and found obvious that a common service profile would have been a convenient way to store the connection profile information that was common to both USIMs in JCR, or connection profile selection criteria that was not expected to change. SAMSUNG-1010, ¶¶[0014], [0039]-[0041], FIG. 4; SAMSUNG-1006, 4:19-5:2, 5:30-6:7, 6:23-29, 7:22-27, 8:26-9:10, 9:25-10:11, 10:16-20, 14:7-18, FIG. 2; SAMSUNG-1003, ¶139.

Incorporating a common service profile into the dual-SIM phone of Jheng-Chiu/Jheng-Chiu-Rao would have been predictable and foreseeable with a reasonable expectation of success because the JCR device already provides the infrastructure to enforce network service policies, and the addition of a common profile simply adds an additional source of these policies without substantively changing their underlying function or purpose. SAMSUNG-1006, 4:19-5:2, 5:30-6:7, 6:23-29, 7:22-27, 8:26-9:10, 9:25-10:11, 10:16-20, 14:7-18, FIG. 2; SAMSUNG-1010, ¶¶[0014], [0039]-[0041], FIG. 4. For example, Chiu's connection manager stores connection profiles that can be downloaded from external sources. SAMSUNG-1006, 10:21-30, 13:27-31, FIG. 2; SAMSUNG-1010, ¶¶[0014], [0039]-[0041], FIG. 4. Thus, it would have been obvious for the connection manager to store a common service profile that included features common to both or multiple USIMs of the JCR dual-SIM phone, thus negating the need for USIMs to store duplicative

information and ensuring the device always had access to common services (regardless of what USIM was in use). SAMSUNG-1003, ¶142. *Id*. Further, the implementation of a common service profile would have involved only routine coding ability that would have been well within a POSITA's capability (e.g., coding the instructions of the profile as machine readable code for execution by a processor). *Keynetik, Inc.*, 2023 WL *2; SAMSUNG-1003, ¶142. For example, Chiu discloses that profiles can be coded in Extensible Markup Language ("XML"), a well-known language that would have been part of a POSITA's general knowledge. SAMSUNG-1006, 7:25-27; *see, e.g.,* SAMSUNG-1029, 5; SAMSUNG-1003, ¶142.



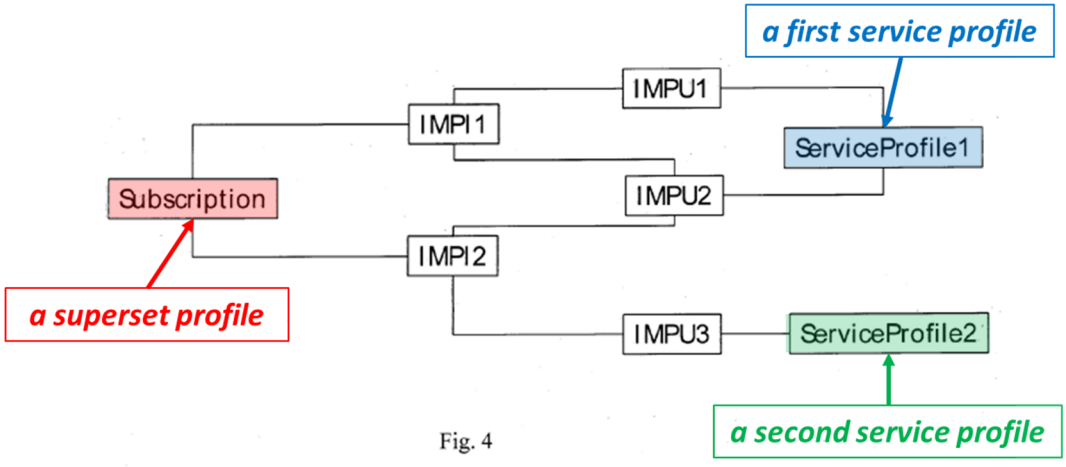
SAMSUNG-1006, FIG. 2.

3. Analysis

[8]

The '055 patent explains that a "***superset profile***" is a "profile that provides

the combined capabilities of two or more service profiles." SAMSUNG-1001, 69:4-6. Similarly, Bajko discloses a "common service profile" ("***a superset profile***") that includes capability information such as services specified by service profiles stored on multiple SIM cards. SAMSUNG-1010, ¶¶[0039]-[0043]. Because the two USIM cards in JCR include the superset profile indicating common feature that refer to common services provided by the services associated with both USIMs, it would have been obvious to a POSITA that the JCR-Bajko combination renders obvious "***capabilities from each of the first and second service profiles***." SAMSUNG-1010, ¶¶[0014], [0039]-[0041], FIG. 4. An example hierarchy of Bajko's subscriptions is shown below in FIG. 4. SAMSUNG-1010, FIG. 4; SAMSUNG-1003, ¶¶143-144.



SAMSUNG-1010, FIG. 4.

As discussed above in [1.5], Chiu's wireless adaptation layer ("***at least one***

adaptive service policy control agent") switches the active network driver in response to instructions from the connection manager determined from the active connection profile's selection criteria and configuration parameters. SAMSUNG-1006, 4:29-5:2, 6:8-22, 10:16-20, 13:4-12:18[4]. Bajko's common subscription profile would have included selection criteria from both the first and second USIMs for services and capabilities common to both (e.g., a network that is a home network for both USIMs, or common subscriptions). SAMSUNG-1010, ¶¶[0014], [0039]-[0041], FIG. 4. Accordingly, when making network selections for common services, the JCR connection manager and wireless adaptation layer would have enforced policies ("***applies network service policies***") based on common selection criteria from the common service profile ("***at least one adaptive service policy control agent applies network service policies from a superset profile that provides capabilities from each of the first and second service profiles***"). SAMSUNG-1010, ¶¶[0014], [0039]-[0041], FIG. 4; *see supra*, §III.E.2, §III.B.6.[1.4]-[1.5]; SAMSUNG-1003, ¶145.

[4] Additionally, as discussed above in [1.5], Rao's remote access client also applies policies, and Bajko's superset profile would have additionally specified policies common to multiple applications (e.g., a group of "background" applications). SAMSUNG-1007, ¶[0182]; *supra* §III.B.6.[1.5].

F. GROUNDS 1E AND 2E

1. Overview of Liu

Liu discloses a SIM with a template manager system that includes SIM templates (e.g., phone books, call logs, messages) for a particular area (e.g., a country) where a user will travel. SAMSUNG-1030, ¶¶[0017]-[0022], FIGS. 1-2. Liu's template manager system applies SIM templates to the SIM and reboots the SIM when a new template is loaded. SAMSUNG-1030, ¶[0041], FIG. 3; SAMSUNG-1003, ¶35. Liu's FIG. 1 depicts a compartmentalized SIM with SIM templates, while FIG. 2 depicts the composition of an example SIM.

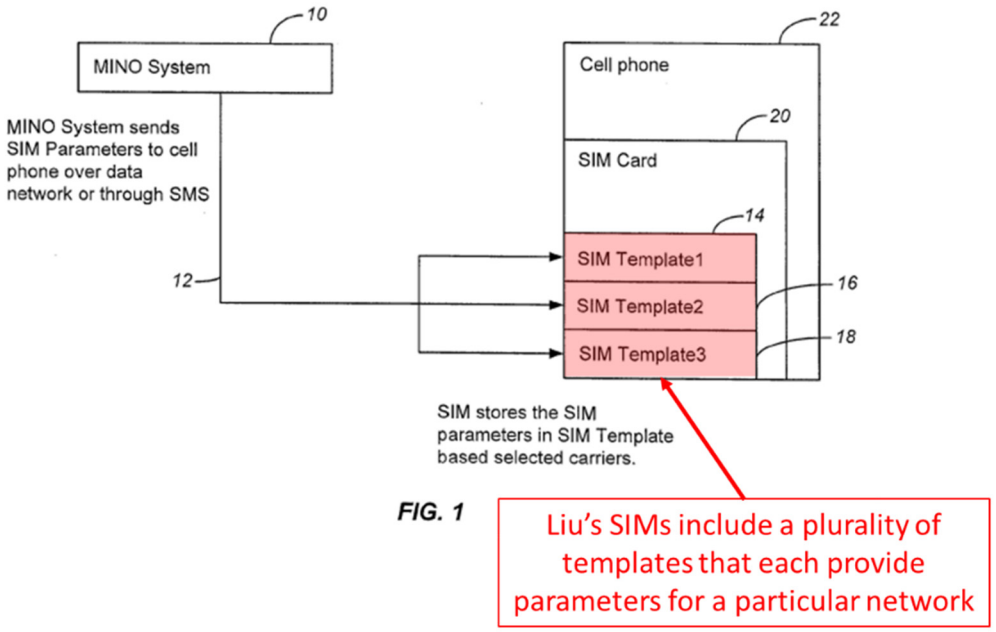


FIG. 1

SAMSUNG-1030, FIG. 1.

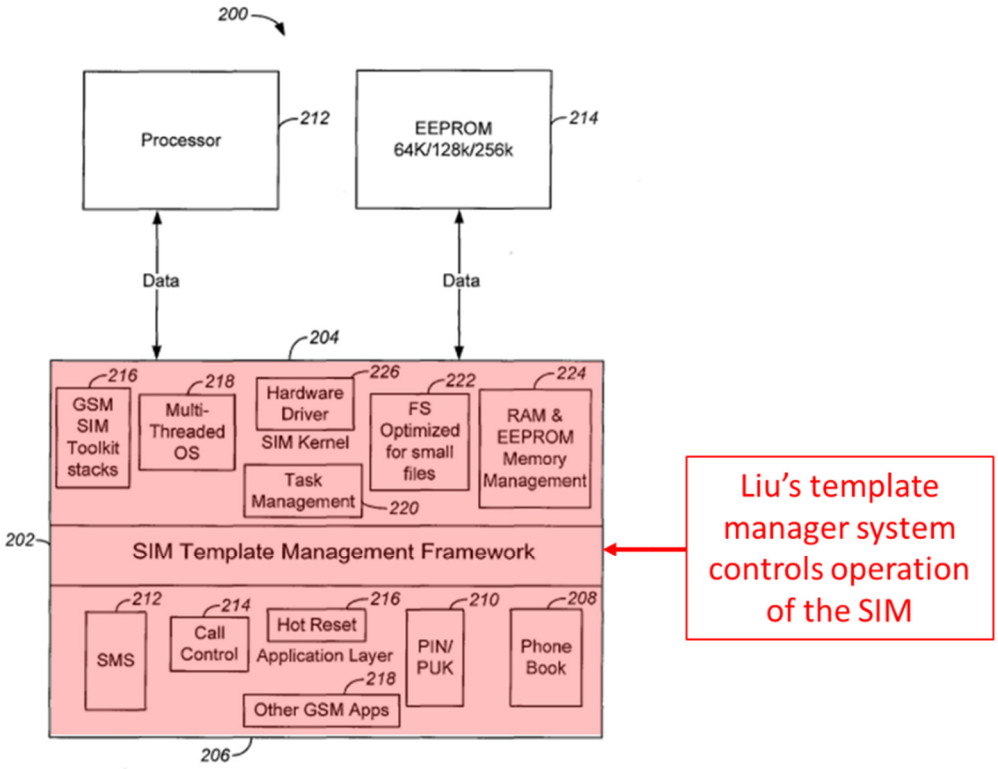


FIG. 2

SAMSUNG-1030, FIG. 2.

2. Combination of Liu with Jheng-Chiu with or without Rao

It would have been obvious to a POSITA to combine Liu with the JCR system such that USIMs on the combination device would have included a template manager system to load SIM templates for the USIM in response to commands from the connection manager (enforcing a policy to load a SIM template for a particular network). SAMSUNG-1006, 4:19-5:2, 5:30-6:7, 6:23-29, 7:22-27, 8:26-7:10, 9:25-10:11, 10:16-20, 14:7-18, FIG. 2; SAMSUNG-1030, ¶¶[0017]-[0022], [0040]-[0041], FIGS. 1-3; SAMSUNG-1003, ¶146.

First, SIM templates would have enabled a user of the JCR device to compartmentalize the storage of their USIM, as taught by Liu. SAMSUNG-1030, ¶¶[0019]-[0022]. In addition to providing additional means for roaming prevention, SIM templates would have allowed a user to store SIM information particular to a network for multiple networks on a single USIM (e.g., a "phone book" for a specific roaming network), providing greater convenience to the user. *Id*.; SAMSUNG-1003, ¶147.

Second, Liu's templates would have increased the versatility of the USIMs of the JCR dual-SIM phone by allowing a user to combine multiple sets of SIM parameters into a single USIM. SAMSUNG-1030, ¶¶[0017]-[0022], FIG. 1. Configuring USIMs to store multiple SIM templates would have allowed the user to configure their device for more networks than would have been possible without these templates. *Id*.; SAMSUNG-1003, ¶148.

Implementing a SIM template manager on the USIMs of the JCR dual-SIM phone to load SIM templates in response to instructions from the connection manager would have been predictable and foreseeable with a reasonable expectation of success because Liu describes that its SIMs adhere to well established GSM standards that (1) are compatible with the combination and (2) which a POSITA would have been generally aware of (e.g., GSM 11.11, discussed above in Ground 1A). SAMSUNG-1030, ¶¶[0025]-[0028]; *see generally* SAMSUNG-1015; SAMSUNG-

1003, ¶151. Additionally, Liu's template manager system is configured to accept commands to load a particular SIM template ("SIM command"), and the JCR connection manager is also configured to provide instructions to other programs in response to detected networks (e.g., the wireless adaptation layer). SAMSUNG-1006, 4:19-5:2, 5:30-6:7, 6:23-29, 7:22-27, 8:26-7:10, 9:25-8:11, 10:16-20, 14:7-18, FIG. 2; SAMSUNG-1030, ¶¶[0017]-[0022], [0040]-[0041], FIGS. 1-3; SAMSUNG-1003, ¶151.

In the JCR-Liu system, SIM template manager systems resident on each USIM would have loaded SIM templates in response to instructions from the JCR connection manager. SAMSUNG-1006, 4:19-3:2, 5:30-4:7, 6:23-29, 7:22-27, 8:26-7:10, 9:25-8:11, 10:16-20, 14:7-18, FIG. 2; SAMSUNG-1030, ¶¶[0017]-[0022], [0040]-[0041], FIGS. 1-3; SAMSUNG-1003, ¶152.

3. Analysis

[11]

Jheng discloses at least one USIM in its dual-SIM phone ("***a Subscriber Identity Module (SIM)***"). SAMSUNG-1005, ¶¶[0030]-[0035]; *see supra*, [1.2]. For the reasons explained above in §III.F.2, it would have been obvious to a POSITA that the JCR-Liu USIMs would have included a SIM template manager

(an "***adaptive service policy control agent located at least in part on the SIM***"[5]) to load SIM templates in response to commands from the connection manager (e.g., when a network corresponding to a SIM template is encountered). SAMSUNG-1006, 4:19-5:2, 5:30-6:7, 6:23-29, 7:22-27, 8:26-9:10, 9:25-10:11, 10:16-20, 14:7-18, FIG. 2; SAMSUNG-1030, ¶¶[0017]-[0022], [0040]-[0041], FIGS. 1-3; SAMSUNG-1003, ¶¶153-154.

G. GROUNDS 1F AND 2F

1. Overview of Brown

Brown discloses a SIM card with "a plurality of sets of subscription parameters, with each set of subscription parameters including identification and configuration information for a different type of operation." SAMSUNG-1012, ¶¶[0019]-[0024], FIG. 1 (reproduced below). For example, the SIM can include subscription parameters for "different operating markets or regions." *Id*. Brown's subscription parameters can be activated and deactivated. SAMSUNG-1012, ¶¶[0018], [0020], [0024], [0032]-[0034]; SAMSUNG-1003, ¶36.

[5] The SIM template manager is an additional example of an "***adaptive service policy control agent***," in addition to the wireless adaptation layer and remote access client discussed above in Grounds 1A and 1B. *Supra*, §III.B.6.[1.5]-[1.6].

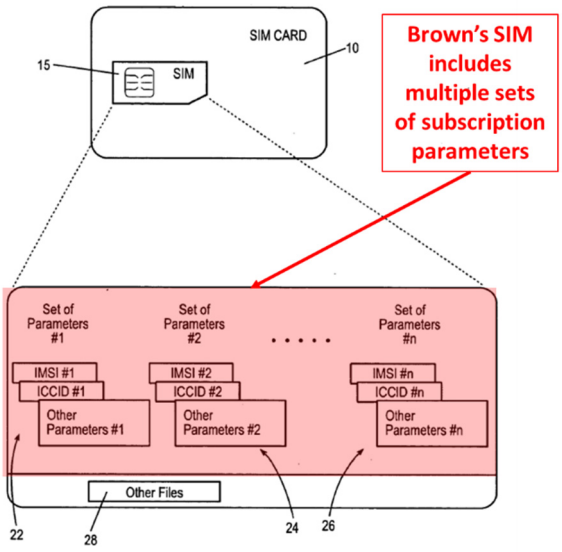


Fig. 1

SAMSUNG-1012, FIG. 1.

2. Combination of Brown with Jheng-Chiu with or without Rao

It would have been obvious to a POSITA to combine Brown with the JCR system such that USIMs on the combination device would have been activated and deactivated as needed, as explained in detail below. SAMSUNG-1012, ¶¶[0018], [0020], [0024], [0032]-[0034]; SAMSUNG-1003, ¶155.

First, the activation and deactivation of SIM credentials "allows the mobile phone or other electronic device to be adaptable to different criteria, e.g., different markets or regions, by allowing a particular set of subscription parameters to be activated on the SIM 15, depending on the market or region in which the SIM 15 is to be used." SAMSUNG-1012, ¶[0018]. Accordingly, if a service provider wished to re-configure a USIM with a different fare plan for a particular region, a

USIM using Brown's techniques could have been deactivated, re-programmed, and then reactivated—negating the need for the user to acquire a new physical USIM. SAMSUNG-1012, ¶[0033]; SAMSUNG-1003, ¶156.

Second, because the USIM allows for the activation and deactivation of credentials, as corroborated by 3GPP TS 31.102, a POSITA would have recognized and found obvious that this would have been an efficient way to restrict a user's access to the network for security reasons (e.g., a user was suspected of fraud, as discussed above with respect to Collins). SAMSUNG-1005, ¶[0033], FIG. 1; SAMSUNG-1009, ¶¶[0040]-[0048]; SAMSUNG-1014, 15-17; *see supra*, §III.C.2; SAMSUNG-1003, ¶157.

The activating and deactivating of USIMs on the JCR dual-SIM phone would have been predictable and foreseeable with a reasonable expectation of success because 3GPP TS 31.102, which a POSITA would have been aware of examples of credentials that could be activated and deactivated on the USIM to provide or rescind service (e.g., the "IMSI" or keys associated with the USIM). SAMSUNG-1005, ¶[0033], FIG. 1; SAMSUNG-1009, ¶¶[0040]-[0048]; SAMSUNG-1014, 15-17; SAMSUNG-1003, ¶160. Additionally, Brown discloses that USIMs can be activated and deactivated using a "terminal interface," and Jheng already provides such an interface for user interaction with USIMs (the MMI). SAM-

SUNG-1005, ¶[0057], FIG. 11; SAMSUNG-1012, ¶[0034]. Further, the implementation of procedures to activate and reactivate USIMs would have involved only routine coding ability that would have been well within a POSITA's capability (e.g., coding the functions into the secure memory of the USIM for execution by the USIM internal processor). *Keynetik, Inc.*, 2023 WL *2; SAMSUNG-1003, ¶160. In fact, Brown discloses explicitly that such capability can be programmed into USIMs. SAMSUNG-1012, ¶[0035].

In the JCR-Brown system, SIMs on the combination device could be activated and deactivated, either by the user at will or automatically when a USIM is installed in the JCR device, for example, to replace or restrict a USIM's fare plan, as taught in Brown. SAMSUNG-1012, ¶¶[0018], [0020], [0024], [0032]-[0035]; SAMSUNG-1003, ¶161.

3. Analysis

[13]

Brown discloses that parameters such as IMSI, subscription parameters (e.g., a telephone number) can be deactivated and reactivated. SAMSUNG-1012, ¶¶[0005], [0015]-[0016], [0018], [0020], [0024], [0032]-[0034], FIG. 1. In the JCR-Brown combination, a POSITA would have found obvious that credentials contained within a second USIM connection profile (e.g., a secret key K, IMSI, or phone number—"***the second device credentials***"), associated with a service plan

("***the second service plan***") could be activated and reactivated with the service plan ("***suspend the second device credentials, and when the second service plan is reactivated, reactivate the second device credentials***"). SAMSUNG-1005, ¶¶[0006], [0029]-[0030], [0032], [0038], [0042], [0051]; SAMSUNG-1012, ¶¶[0019], [0020], [0032]-[0034], FIG. 1; SAMSUNG-1001, 123:8-45; *see supra*, [1.2], [2.1]-[2.2]. For example, when a user removed the second USIM from the device, the second fare plan would have been deactivated "automatically," as taught in Brown. SAMSUNG-1012, ¶[0035]. Upon reinstalling the USIM, the USIM would have automatically activated the second fare plan "upon SIM power-up," as taught in Brown. *Id*. In another example, the user would have deactivated or activated the second USIM manually. SAMSUNG-1012, ¶[0034]; SAMSUNG-1003, ¶162.

IV. PTAB DISCRETION SHOULD NOT PRECLUDE INSTITUTION

A. §325(d)

Discretionary denial under the Board's §325(d) *Advanced Bionics* analysis is not warranted. *See Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6, 8-9 (PTAB Feb. 13, 2020) (precedential) ("*Advanced Bionics"*).

None of the prior art references advanced in this Petition were previously before the Office. While a relative of Rao (PCT application WO 2006/012610A2

("Rao-2") was cited on the face of the '055 Patent, there is no evidence that the Office substantively considered this reference. *See, generally,* SAMSUNG-1002. Moreover, the same or substantially the same arguments were not previously presented to the Office. *Id.* There can be no overlap between the arguments made before the Office because the Examiner issued no prior art rejections during prosecution.

To the extent it is argued that the same or substantially the same art or arguments were previously presented to the Office, the second prong is not met. *Advanced Bionics*, 8-10. The Examiner issued no prior art rejections and included no substantive discussion of any prior art reference. *See, generally,* SAMSUNG-1002. Therefore, although Rao-2 was cited on the face of the '055 Patent, none of Rao, Rao-2, or the obviousness of the Challenged Claims in view of those references was ever addressed by the Examiner during prosecution. *Supra* §III.A-F; *see Tokyo Ohka Kogyo Co., Ltd. v. Fujifilm Elec. Materials U.S.A., Inc.*, PGR2022-00010, Paper 9, 8-9 (PTAB June 6, 2022). As such, Petitioner has demonstrated material error by the Office, and discretionary denial is not warranted.

B. §314(a)

The *Fintiv* factors counsel against denial. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11, 15 (March 20, 2020) (precedential).

Factor 1 is neutral because neither party has requested a stay in the co-pending litigation.

Factor 2 is neutral because the Court's trial date is speculative and subject to change. The Board will likely issue its Final Written Decision around September 2026, approximately 7 months after the currently-scheduled trial date (February 9, 2026). SAMSUNG-1027, 1. However, "scheduled trial dates are unreliable and often change." SAMSUNG-1025, 8.

Factor 3 favors institution because Petitioner has diligently filed this Petition months ahead of the one-year time bar, while the co-pending Litigation is in its early stages. Beyond exchanging preliminary infringement and invalidity contentions, the parties and the court have yet to expend significant resources on invalidity. SAMSUNG-1027. By the anticipated institution deadline in September 2025, the co-pending litigation will still be in early stages—fact and expert discovery will be ongoing, and the *Markman* hearing will not have occurred. *Id.*

Factor 4 favors institution because Petitioner stipulates to not pursuing the IPR grounds in the co-pending litigation. SAMSUNG-1026. Thus, institution serves "efficiency and integrity goals" by "not duplicating efforts" and "resolving materially different patentability issues." *Apple, Inc. v. SEVEN Networks, LLC*, IPR2020-00156, Paper 10, 19 (June 15, 2020); *Sand Revolution II, LLC v. Continental Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24, 12 (June 16,

2020).

Factor 5: The same parties are in the co-pending litigation.

Factor 6 favors institution because this Petition's merits are compelling.

V. CONCLUSION AND FEES

The Challenged Claims are unpatentable. Petitioner authorizes charge of fees to Deposit Account 06-1050.

VI. MANDATORY NOTICES UNDER 37 C.F.R § 42.8(a)(1)

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, "Samsung") are the real parties-in-interest.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

The '055 Patent is the subject of civil action Headwater Research LLC v. Samsung Electronics Co., Ltd. et al 2-24-cv-00228 (EDTX), filed April 3, 2024 (SAMSUNG-1004). Petitioner is not aware of any other disclaimers, reexamination certificates, or IPR petitions addressing the '055 Patent.

C. Lead And Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Petitioner provides the following designation of counsel.

Lead Counsel	Backup counsel
W. Karl Renner, Reg. No. 41,265 Fish & Richardson P.C. 60 South Sixth Street, Suite 3200 Minneapolis, MN 55402 Tel: 202-783-5070 Fax: 877-769-7945 Email: IPR39843-0184IP1@fr.com	Jeremy J. Monaldo, Reg. No. 58,680 Usman A. Khan, Reg. No. 70,439 60 South Sixth Street, Suite 3200 Minneapolis, MN 55402 Tel: 202-783-5070 Fax: 877-769-7945 PTABInbound@fr.com

D. Service Information

Please address all correspondence and service to the address listed above.

Petitioner consents to electronic service by email at IPR39843-0184P1@fr.com

(referencing No. 39843-0184IP1 and cc'ing PTABInbound@fr.com).

Respectfully submitted,

Dated February 26, 2025

/Usman Khan/
W. Karl Renner, Reg. No. 41,265
Jeremy J. Monaldo, Reg. No. 58,680
Usman A. Khan, Reg. No. 70,439
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
T: 202-783-5070
F: 877-769-7945

(Control No. IPR2025-00481)

Attorneys for Petitioner

CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter Partes* Review totals 13,987 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Dated February 26, 2025

/Usman Khan/

W. Karl Renner, Reg. No. 41,265
Jeremy J. Monaldo, Reg. No. 58,680
Usman A. Khan, Reg. No. 70,439
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
T: 202-783-5070
F: 877-769-7945

Attorneys for Petitioner

CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on February 26, 2025, a complete and entire copy of this Petition for *Inter Partes* Review, Power of Attorney and all supporting exhibits were provided by Federal Express, to the Patent Owner, by serving the correspondence address of record as follows:

Headwater Research LLC
C/O Farjami & Farjami LLP
26522 La Alameda Ave., Suite 360
Mission Viejo, CA 92691

/Diana Bradley/

Diana Bradley
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
bradley@fr.com